

Canadian Association for Biological Anthropology

L'Association Canadienne d'Anthropologie Biologique

53rd Annual Meeting
53ème Congrès Annuel

Montreal 2026





Canadian Association for Biological Anthropology l'Association canadienne d'anthropologie biologique

Mission Statement

The Canadian Association for Biological Anthropology / l'Association canadienne d'anthropologie biologique is a learned society of international scholars and students whose aim is to promote and increase awareness and understanding of biological anthropology among its membership, as well as to supporting institutions and agencies and the public at large. Biological anthropologists study adaptation, variability and evolution in a biocultural context. Our members recognize and celebrate the geographic and temporal diversity and complexity of ancient and modern humankind, our hominin forebears and our nonhuman primate cousins and their ancestors. As such, our discipline is inherently multidisciplinary, crossing the boundaries between the natural and social sciences, in order to provide a richer understanding of human diversity and complexity.

Statement of Respect for Diversity and Inclusion

Our organization embraces diversity among its membership and values the inclusion of people with diverse perspectives and backgrounds. We commit to providing a welcoming and safe space for scientists and scholars regardless of sex, ethnicity, age, physical appearance, sexual orientation, gender identity, disability, financial situation, religion, national origin, cultural background, pregnancy, parental or marital status, immigration status, academic affiliation, or any other aspect of identity. We seek at all times to mitigate the harms caused by inequities within our academy. We acknowledge the lands on which we gather and our continuing commitment to decolonizing our professional interactions through community-engaged approaches. Bullying, harassment or discriminatory forms of behaviour have no place within our society. All members are to be treated with dignity and respect and are expected to adhere to the CABA-ACAB Code of Ethics as well as any such codes by which they are bound through institutional or other affiliation.

Mission

L'Association canadienne d'anthropologie biologique / Canadian Association for Biological Anthropology est une société savante regroupant des chercheurs et des étudiants internationaux dont l'objectif est de promouvoir et d'accroître la sensibilisation et la compréhension de l'anthropologie biologique parmi ses membres, ainsi que de soutenir les institutions, les organismes et le grand public. Les anthropologues biologiques étudient l'adaptation, la variabilité et l'évolution dans un contexte bioculturel. Nos membres reconnaissent et célèbrent la diversité et la complexité géographiques et temporelles de l'humanité ancienne et moderne, de nos ancêtres hominidés et de nos cousins primates non humains et de leurs ancêtres. À ce titre, notre discipline est intrinsèquement multidisciplinaire, transcendant les frontières entre les sciences naturelles et sociales, afin d'offrir une compréhension plus riche de la diversité et de la complexité humaines.

Déclaration de respect de la diversité et de l'inclusion

Notre organisation encourage la diversité parmi ses membres et valorise l'inclusion de personnes ayant des perspectives et des origines diverses. Nous nous engageons à offrir un espace accueillant et sécuritaire aux scientifiques et aux universitaires, indépendamment de leur sexe, de leur origine ethnique, de leur âge, de leur apparence physique, de leur orientation sexuelle, de leur identité de genre, de leur handicap, de leur situation financière, de leur religion, de leur origine nationale, de leur milieu culturel, de leur grossesse, de leur situation parentale ou matrimoniale, de leur statut d'immigrant, de leur affiliation universitaire ou de tout autre aspect de leur identité. Nous cherchons en permanence à atténuer les préjudices causés par les inégalités au sein de notre académie. Nous reconnaissons les terres sur lesquelles nous nous réunissons et notre engagement continu à décoloniser nos interactions professionnelles grâce à des approches communautaires. L'intimidation, le harcèlement ou les comportements discriminatoires n'ont pas leur place au sein de notre société. Tous les membres doivent être traités avec dignité et respect et sont tenus de respecter le code de déontologie de la CABA-ACAB ainsi que tout autre code auquel ils sont liés par leur affiliation institutionnelle ou autre.

Welcome to Montreal!

Montréal is pleased to welcome all of you to the 53rd annual meeting of the Canadian Association for Biological Anthropology – l'Association canadienne d'anthropologie biologique. It is important to remember that we are on the traditional territory of Tiohtià:ke, which means in Kanien'kéha (Mohawk) : Where boats and rivers meet. Montréal, a place where cultures meet in unexpected ways. This historical city holds stories of collaboration and community. From the first women and men that were here all the way to the Expo 67. You can find traces of that history at museums like Pointe à Callière and the architecture still present at Île Ste-Hélène. We wish you a wonderful visit around this symphony of colors, culture and history that is this city.

Lastly, we have a total of 281 registrations for the conference, with 87 podium presentations and 105 posters.

Bienvenue à Montréal !

La ville de Montréal vous accueille pour la 53e rencontre annuelle de l'association canadienne d'anthropologie biologique – Canadian Association for Biological Anthropology. Il est important de se souvenir que nous sommes sur le territoire traditionnel de Tiohtià:ke, ce qui signifie Kanien'kéha (Mohawk) : là où les bateaux et les rivières se rencontrent. Montréal est un endroit où les cultures se rencontrent de manière inattendue. Cette ville historique contient des histoires de collaborations et de communautés. Des premières femmes et hommes qui sont venues ici à l'expo 67, il est possible de trouver des traces de cette histoire à des musées comme celui de Pointe à Callière et même l'architecture toujours présente sur l'île Ste-Hélène. Nous vous souhaitons une très belle visite de cette belle symphonie de couleur, culture et d'histoire qu'est la ville de Montréal.

Au dernier compte, nous avons un total de 281 registrations avec 87 présentations au podium et 105 posters.



Nearby places ideas

Idées d'endroits proches

Eat/Manger

Budget Places/ Places pas chères

Café Amea	https://share.google/8rgwJbvKtsZZyVJ00
Le Warehouse	https://share.google/f56Qe3HEyly8GUA0o
Joes Panini 24h	https://share.google/HRHLHeeOZXPKM8PV
Eggspectation	https://share.google/3ZanPbRkAayhXAbMi

Pubs

Pub Bishop & Bagg	https://share.google/5x0Si7RGKw1YoZ5FJ
Le Bar Darling	https://share.google/Oy2fIVPsLDTRWSWRG
Le Terminal	https://share.google/MyZyMiL2K9K31E6QS
Pub McCarold	https://maps.app.goo.gl/NGEyypZsE9xX8hWh8

Brewery French cuisines/ Brasseries Cuisine Francaise

Le Boulevardier	https://share.google/3HiJbll53qJBQqe5g
Le Pois Penché	https://share.google/CsTaXPBzo3B9P3pd9
Bar George	https://share.google/3PNrBpeJ7AYuXJMFb

Shop/Magasinier

Centre Eaton de Montréal	https://share.google/XF9xtus9dYgX67nbr
Place Montréal Trust	https://share.google/aR0sNzkRDJ9rz51Kd
Les Cours Mont-Royal	https://share.google/5Yvq1MXLQU9hw4xm2
Maison Local (Sainte-Catherine)	https://share.google/8ZBb87XyDFsNzwdD0
Le Réseau souterrain (La Ville souterraine)	https://share.google/L6l4NDUvYFDUzv1vg

Visit/Visiter

Musée des beaux-arts de Montréal (MBAM)	https://share.google/mkIDIBR9o1AcvpNLv
Musée Redpath	https://share.google/ZyWSzdRtPFmtJ0gDx
McCord Stewart Museum	https://share.google/75d1suh7JSL1gUBeg
Fondation PHI pour l'art contemporain	https://share.google/gwnADbT4dxnODnSWX
Pointe-à-Callière, cité d'archéologie et d'histoire	https://share.google/iGY6CRFIKIXYtPsm
Château Ramezay	https://share.google/Fbbrm6icEFx59kNL8
Montreal Science Centre	https://maps.app.goo.gl/ZVFtuUeJ2EJUdhqa8
Biodôme de Montréal	https://share.google/5JT8pwQBMnYbZFxHx

Acknowledgements/Remerciements

We would like to thank l'Université de Montréal,
and the department of anthropology for their support:

Nous aimerions remercier l'Université de Montréal,
ainsi que le département d'anthropologie pour leur support :



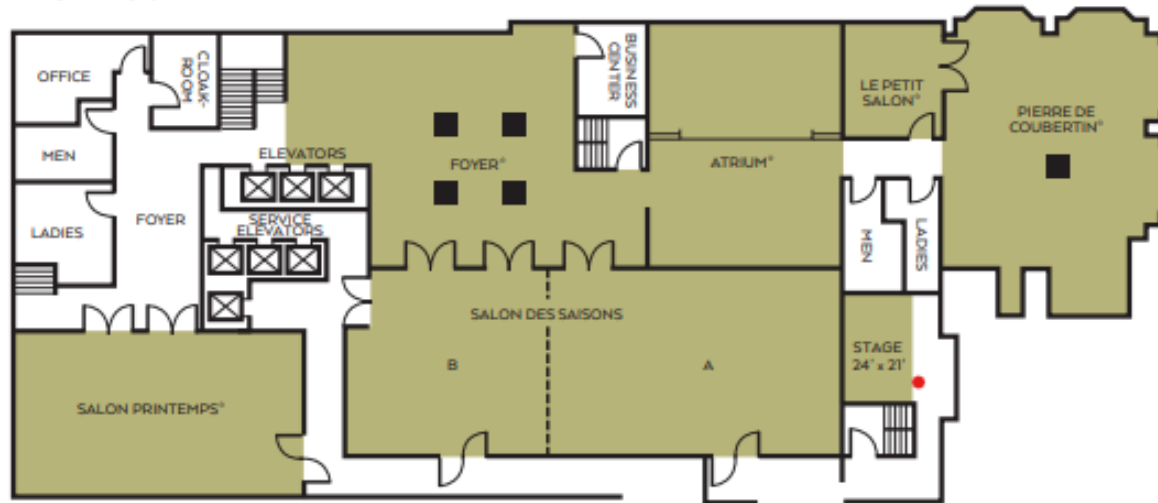
We would like to thank the following sponsors for their generous support:
Nous aimerions remercier les partenaires suivants pour le support généreux:



1050 Rue Sherbrooke O, Montréal, QC H3A 2R6

HOTEL OMNI MONT-ROYAL MEETING SPACE

FIRST FLOOR

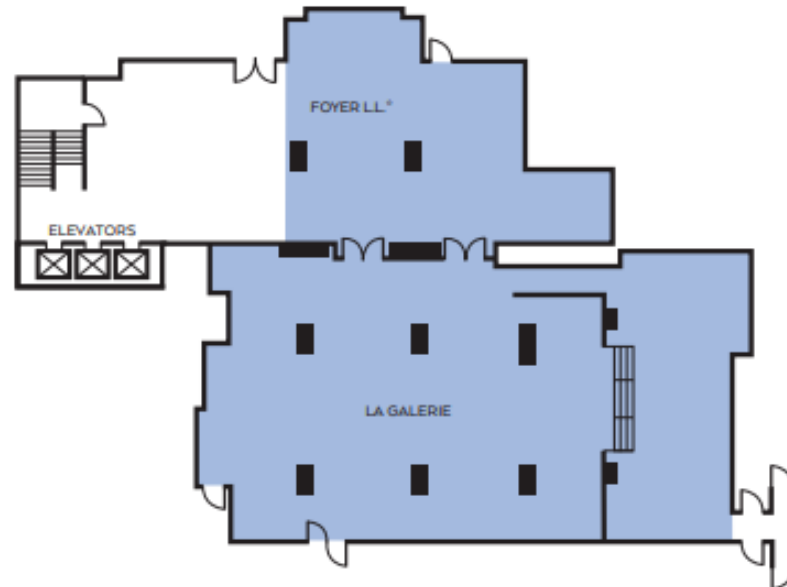


SECOND FLOOR



*Natural Light

LOWER LEVEL



Functions of the Rooms/Fonctions des salles

Room	Use during conference
Pierre-de-Coubertin	Opening reception Wednesday, October 28, 6:00–11:00 p.m.; main conference sessions Thursday and Saturday; concurrent sessions and banquet Friday, October 30, 6:30–10:30 p.m.
Printemps	Live-feed overflow for the main sessions Thursday and Saturday; concurrent sessions and business meeting Friday, October 30, 4:45–6:30 p.m.
Foyer 1	Poster displays Thursday through Saturday and coffee breaks.
Automne	Student luncheon Thursday, October 29, 12:15–2:00 p.m.
Sherbrooke	Organizer office and conference materials, Thursday through Saturday.
Hiver	Support, quiet, and family room, Thursday through Saturday

Salle	Utilisation pendant le congrès
Pierre-de-Coubertin	Réception d'ouverture le mercredi 28 octobre, de 18 h à 23 h; séances principales le jeudi et le samedi; séances concurrentes et banquet le vendredi 30 octobre, de 18 h 30 à 22 h 30.
Printemps	Salle de débordement avec retransmission en direct des séances principales le jeudi et le samedi; séances concurrentes et réunion d'affaires le vendredi 30 octobre, de 16 h 45 à 18 h 30.
Foyer 1	Présentation des affiches du jeudi au samedi et pauses-café.
Automne	Dîner étudiant le jeudi 29 octobre, de 12 h 15 à 14 h.
Sherbrooke	Bureau des organisateurs et espace pour le matériel du congrès, du jeudi au samedi.
Hiver	Salle de soutien, de repos et familiale, du jeudi au samedi

CABA–ACAB 2026

Conference Schedule at a glance

Programme de la Conférence en un coup d'oeil

Wednesday/Mercredi, October 27		
Time/heure	Activity/Activité	Room/Salle
1:45pm-3:00 pm	Only for registered people/Pour personnes inscrites seulement Excursion 1 Maude Abbott Medical Museum Tour	(Main gates at McGill Univ., Roddick Gates)
8:15am-5:00 pm	Only for registered people/Pour personnes inscrites seulement Excursion 2 – REST[ES] Tour	Omni Hotel entrance (departure/départ)
5:00 – 9:00 pm	Registration/Inscription	Foyer/Entrance
6:00 – 10:00 pm	Welcome Reception /Réception de bienvenue (Hors d'oeuvre and cash bar)	Pierre-de-Coubertin

Thursday/Jedi, October 29		
Time/heure	Activity/Activité	Room/Salle
8:00 am-5:00 pm	Registration/Inscription	Foyer 1/Entrance
8:00-8:30 am	Coffee, tea, juice/Café, thé, jus	Foyer 1
8:00 – 8:30 am	Poster Session 1 set up/installation	Foyer 1
8:30 – 8:45 am	Opening remarks/ Remarques d'ouverture	Pierre-de-Coubertin + Printemps
8:45 – 10:15 am	Health and Aging Chair: McKinnon L, Gibb JK	Pierre-de-Coubertin + Printemps
10:15 - 10:45 am	Coffee Break/ Break Café (Posters)	Foyer 1
10:45 - 12:15	Skeletal Biology Chair: Dickinson E	Pierre-de-Coubertin + Printemps
12:15 – 2:00 pm	Lunch	Outside
	Student luncheon For registered people only/Pour personnes inscrites seulement	Automne
2:00 – 3:30 pm	Non-Academic Contributions to Biological Anthropology Chairs: Avery C and Bishop K	Pierre-de-Coubertin + Printemps
3:30 – 4:00 pm	Coffee Break/ Break Café (Posters)	Foyer 1
4:00 - 5:00 pm	Human & Other-than-human species co-evolution Chairs: Alaica A and Hopper C	Pierre-de-Coubertin + Printemps
6:00-7:00 pm	Speed Networking Event For registered people only/Pour personnes inscrites seulement	Maison Publique
7:00- onward	Pub night (Open to all CABA-ACAB attendees)	McCarold's Pub

Friday/Vendredi, October 30		
Time/heure	Activity/Activité	Room/Salle
8:00 am-5:00 pm	Registration/Inscription	Foyer 1/Entrance
8:00-8:30 am	Coffee, tea, juice/Café, thé, jus	Foyer 1

Friday/Vendredi, October 30

Time/heure	Activity/Activité	Room/Salle
8:30 – 10:15 am	Primateology 1 Chair : Bădescu, I	Pierre-de-Coubertin
8:30 – 10:15 am	Ethics and qualitative perspectives on bioanthropology Chair: Cameron M	Printemps
10:15 - 10:45 am	Coffee Break/ Break Café (Posters)	Foyer 1
10:45 – 12:45	Primateology 2 Chair : Bădescu, I	Pierre de Coubertin
10:45 – 12:45	From lab to living room: knowledge mobilization and the future of biological anthropology Chairs: Schneider M and Hider J	Printemps
12:45 – 2:30 pm	Lunch	Outside
2:30 – 3:30 pm	Molecular anthropology 1 Chair: Orkin, J	Pierre de Coubertin
2:30 – 3:30 pm	Forensic anthropology 1 Chair: Cuerrier-Richer E	Printemps
3:30 – 4:00 pm	Coffee Break/ Break Café (Posters)	Foyer 1
4:00 – 4:45 pm	Molecular anthropology 2 Chair: Orkin J	Pierre de Coubertin
4:00 – 4:45 pm	Forensic anthropology 2 Chair: Cuerrier-Richer E	Printemps
4:45 – 6:30 pm	Business Meeting CABA / Réunion d'affaires ACAB	Printemps
6:30 – 10:30 pm	Banquet For ticket holders only/Pour personnes avec billets seulement	Pierre de Coubertin

Saturday/Samedi, October 31

Time/heure	Activity/Activité	Room/Salle
8:00 am-5:00 pm	Registration/Inscription	Foyer 1/Entrance
8:00-8:30 am	Coffee, tea, juice/Café, thé, jus	Foyer 1
8:30 – 10:30 am	Health disease and mortality Chair: Siek, T	Pierre-de-Coubertin + Printemps
10:30 - 11:00 am	Coffee Break/ Break Café (Posters)	Foyer 1
11:00 – 12:15	Paleoanthropological Society of Canada (PASC) 1 Chair: Collard, M and Drapeau, M	Pierre-de-Coubertin + Printemps
12:15 – 2:00 pm	Lunch	Outside
2:00 – 3:00 pm	Paleoanthropological Society of Canada (PASC) 2 Chair: Collard, M and Drapeau, M	Pierre-de-Coubertin + Printemps
3:00 – 3:30 pm	Coffee Break/ Break Café (Posters)	Foyer 1
3:30– 4:30 pm	Paleoanthropological Society of Canada (PASC) 3 Chair: Collard, M and Drapeau, M	Pierre-de-Coubertin + Printemps
4:30 – 4:45 pm	Closing remarks / Remarques de conclusion	Pierre-de-Coubertin + Printemps

Detailed Schedule/Programme détaillé

(*student competition/ compétition étudiante)

PODIUM SCHEDULE

Thursday/Jedi, October 29				
Time/heure	Presenters/ Présentateurs	Title/Titre	Session	Room/Salle
8:30 – 8:45 am	CABA	Opening remarks/ Remarques d'ouverture	Health and Aging Chair: L McKinnon, Gibb JK	Pierre-de-Coubertin + Printemps
8:45 – 9:00 am	McKinnon, Leela et al.	Sleep Timing, Sleep Regularity, and Circadian Function in Rural and Urban Wixárika Communities in Mexico		
9:00 – 9:15 am	Stead, Samantha et al.	Breastfeeding May Buffer the Association Between Prenatal Stress and Child Emotional Problems		
9:15 – 9:30 am	Gibb, James K et al.	Depressive Symptoms Prospectively Predict Inflammation among Sexual Minority Older Adults in Canada: Evidence from the Canadian Longitudinal Study on Aging		
9:30 – 9:45 am	Austin, Ashley	Reconstructing Brandon's 20th century mortality profile by age and sex		
9:45 – 10:00 am	González, Luis Manuel et al.	Dentition, Third Hand, and Community Care: Bioarchaeological Insights from the Formative Period Site of Cerro Pacifico, Peru		
10:00 – 10:15 am	Mah, Jessica et al.	One step at a time: Insights into Early Bronze Age Mobility and Social Organization at Wadi Faynan 100 using minimally destructive strontium isotope ratio analysis		
10:15 - 10:45 am		Coffee Break/ Break Café (Posters)		Foyer 1
10:45 - 11:00 am	Wollmann-Reynolds, Jessica et al.	Signatures of bipedality and other locomotor modes in the rotational profile of the lower limb	Skeletal Biology Chair: Dickinson E	Pierre-de-Coubertin + Printemps
11:00 - 11:15 am	Dickinson, Edwin et al.	Get a grip: arboreal locomotion and the evolution of the pseudthumb		
11:15 - 11:30 am	Polk, John et al.	Effects of exercise and postural change on subchondral and trabecular bone properties in the distal femur		
11:30 - 11:45 am	Rudski, Benjamin & Reznikov, N*	Trabecular anisotropy in 3D: a high-resolution structural proxy of functional history		
11:45 - 12:00 am	Loose, Naomi et al.	Modeling functional changes in feeding performance throughout life history		
12:00 - 12:15 am	Wiley, Adrianna & Cameron, ME*	Exploring Adult Limb Proportion Variation in Relation to Childhood Subjective Social-Emotional Adversity		
12:15 – 2:00 pm		Lunch		
2:00 – 2:15 pm	Avery, L. Creighton & Simmions, C	The Burial that Wasn't: Expertise and Adaptability in Ontario Excavations	Non-Academic Contributions to Biological Anthropology Chairs: Avery C and Bishop K	Pierre-de-Coubertin + Printemps
2:15 – 2:30 pm	Doyle, L. Elizabeth et al.	The last record: a multidisciplinary investigation of an early Holocene archaeological site in the Peace Region, Treaty Number 8 Territory B.C.		
2:30 – 2:45 pm	Lockyer, Sarah	Meeting the need: The Casualty Identification Program and the recovery of skeletal human remains		
2:45 – 3:00 pm	Kelly, Johanna	Uncovering the Murderers' Graveyard: Biological Anthropology and the Old Don Jail Cemetery Project		
3:00 – 3:15 pm	Burgess, Chris	Lost in another Church Fire: Attempting to relocate unmarked interments using ground penetrating radar and archival data at the 19th century Saint Richards Roman Catholic Cemetery, Louisbourg, Nova Scotia		
3:15 – 3:30 pm	Bishop, Katherine & D'Alessio, M	Reclaimed by the Thames: Remembering and Preserving a 19th Century Cemetery		
3:30 – 4:00 pm		Coffee Break/ Break Café (Posters)		Foyer 1
4:00 – 4:15 pm	Alaica, Aleksa et al.	Size Matters: Economic Pressures, Culling Decisions and Evolutionary Trends among Herding Societies in the Holocene of the Andes	Human & Other-than-human species co-evolution Chairs: Alaica A and Hopper C	Pierre-de-Coubertin + Printemps
4:15 – 4:30 pm	Hopper, Courtney & Mitchell, P	Horse-Power: Biomolecular and Social Drivers of Human-Horse Co-Evolution in the Maloti-Drakensberg Region of southern Africa		
4:30 – 4:45 pm	Li, Ming Fei & Samson, D	Guardians of the night: interspecies nighttime vigilance in a human evolutionary context		
4:45 – 5:00 pm	Burke, Stacie	Compromising the microbiome: How modern human stressors shape disease, disorder, and diversity		

PODIUM SCHEDULE

Friday/Vendredi, October 30					
ROOM = Pierre-de-Coubertin			ROOM = Printemps		
Time/heure	Presenters/ Présentateurs	Title/Titre	Time/heure	Presenters/ Présentateurs	Title/Titre
Primateology 1 Chair : Bădescu, I			Ethics and qualitative perspectives on bioanthropology Chair: Cameron, M		
8:30 – 8:45 am	Landry, Florence & Bădescu, I*	From Illness to Mortality: Understanding Infant Survival in Wild Chimpanzees	8:30 – 8:45 am	Bidinosti, Sarah & Nelson AJ*	Who's your mummy? Mapping the origins and expression of the mummy bundle (fardo) on the Central Coast of Peru
8:45 – 9:00 am	Downie, Emma & Kalan, A*	Behavioural Responses of Neotropical Monkeys to Variation in Perceived Predation Risk	8:45 – 9:00 am	Chin, Caitlin*	Sex/Gender as Process in the Central European Neolithic
9:00 – 9:15 am	Ferreira Pereira, Italo et al.*	Do food Availability and Temperature influence Ranging Behavior in wild Endangered Blond Capuchin Monkeys (<i>Sapajus flavius</i>)?	9:00 – 9:15 am	Godwin, Katya	Hauntology and liminality for ethical consideration of human skeletal remains in biological anthropology
9:15 – 9:30 am	Macedo de Oliveira, Viviane Aurora et al.*	Coping with Stress in Captivity: Personality and Sex Differences in <i>Sapajus spp.</i>	9:10 – 9:30 am	Cameron, Michelle	Science as stories: The role of narratives in bioarchaeology
9:30 – 9:45 am	Bolt, Laura et al.	White-faced capuchin monkeys (<i>Cebus imitator</i>) vary activity budget but not spatial cohesion in the anthropogenic edges of a tropical rainforest	9:30 – 9:45 am	Larrondo, Maya et al.*	Classifying the Poor: Biopolitics, Gender, and Morality in the St. Lawrence County Poorhouse
9:45 – 10:00 am	Stewart, Brogan et al.*	Physically impaired and disabled Japanese macaques (<i>Macaca fuscata</i>) show no detectable deviations in temporal behavioural complexity indicative of potential fitness costs	9:45 – 10:00 am	Oresnik, Sarah*	"It's something everybody should get worried about": Adolescents and the Cost-of-Living Crisis
10:00 – 10:15 am	Nejishima, Yuto et al.	Mother-Infant Conflict over Nursing in free-ranging Japanese Macaques (<i>Macaca fuscata</i>)	10:00 – 10:15 am	Faisal, Eman*	Frameworks for Ethically and Responsibly Using Machine Learning Models in Biological Anthropology
10:15 - 10:45 am	Coffee Break/ Break Café (Posters) Foyer 1				
Primateology 2 Chair : Bădescu, I			From lab to living room: knowledge mobilization and the future of biological anthropology: Chairs: Schneider M and Hider, J		
10:45 - 11:00 am	Tombak, Kaia et al.	Social hierarchies and the fluctuating energetic needs of the female mammal	10:45 - 11:00 am	Glass, Delaney et al.	Social Safety Schema's Classify Resilience among Jordanian Adolescents
11:00 - 11:15 am	Teichroeb, Julie et al.	Mean reversion over time to the optimal group size in a colobus monkey	11:00 - 11:15 am	Olsen, Karyn	Responding to Generative AI Through Assessment Design: Lessons from the Biological Anthropology Classroom
11:15 - 11:30 am	Anderson, Karyn et al.*	Male bond strength is predicted by core unit composition in a primate multilevel society	11:15 - 11:30 am	Hider, Jessica & Cooke, A	One Size Does Not Fit All: Accessibility in Biological Anthropology
11:30 - 11:45 am	Ware, Elizabeth & Bădescu, I*	Developmental and sex differences in sexual behaviour among wild immature chimpanzees	11:30 - 11:45 am	Kassem, Dima et al.	From the Classroom to the Community: A Graduate Student's Guide to Biological Anthropology Outreach
11:45 - 12:00 pm	Orille, Alex & Stumpf, R*	Formation and Maintenance of Wild Chimpanzee Consortships	11:45 - 12:00 am	Schneider, Maris et al.	Who Gets to Be a Scientist? Biological Anthropology Outreach in Collaboration with the Canadian Association for Girls in Science

Friday/Vendredi, October 30

ROOM = Pierre-de-Coubertin			ROOM = Printemps		
Time/heure	Presenters/ Présentateurs	Title/Titre	Time/heure	Presenters/ Présentateurs	Title/Titre
12:00 - 12:15 pm	Tippett, Taylor et al.*	Investigating Accumulative Stone Throwing as a Multimodal Male Display in Western Chimpanzees (<i>Pan troglodytes verus</i>)	12:00 - 12:15 pm	Wissler, Amanda & Cassidy-Neumiller, M	From Ivory Tower to Public Square: The Practicalities of Knowledge Mobilization and the Power of Participatory Learning with Community
12:15- 12:30 pm	Latour, Francis et al.*	L'influence de l'allo-parentalité sur le développement nutritionnel des colobes de Geoffroy	12:15- 12:30 pm	Scott, Amy & Corbett, M	"Where the Past is Present": Using Bioarchaeological Research to Enhance 18th Century Storytelling at the Fortress of Louisbourg, NS
12:30 - 12:45 pm	Marto Granata, Sebastien & Tripp, L*	Churchill's bestiary: An ethnoprimateological examination on the origins of the 'modern' Gibraltar macaques	12:30 - 12:45 pm	Demers-Potvin, Alexandre et al.	What's inside the bundle? A 3D virtual museum powered by micro-CT scans for mummified animals from ancient Egypt
12:45 - 2:30 pm	Lunch				
Molecular anthropology 1 Chair: Orkin, J			Forensic anthropology 1 Chair: Cuerrier-Richer, E		
2:30 – 2:45 pm	Stumpf, Rebecca et al.	Disease Transmission Dynamics at the Interface between Wildlife and Human Settlements in Biodiverse Uganda	2:30 – 2:45 pm	Laughton, Jennifer	If at first you do succeed...a re-run of dental measurement sex estimation when molecular sex data 'changed'
2:45 – 3:00 pm	Van Ankum, Elsa et al.	Insights into the palaeopathology of vitamin D deficiency from mice and non-human primates	2:45 – 3:00 pm	Scott, Cameron & Hoppa, R	A Test of Sex Determination for Recovered First and Second World War Soldier Remains
3:00 – 3:15 pm	Akhtar, Muhammad Shoaib et al.	Genomic and behavioral evidence for social olfaction in white-faced capuchins	3:00 – 3:15 pm	Oladipo, Gabriel et al.	External Ear Morphometry in the Estimation of Sex and Stature among Igbo in Nigeria
3:15 – 3:30 pm	Melin, Amanda et al.	Ethanol is widespread in wild tropical and subtropical fruits and flowers	3:15 – 3:30 pm	Madrid, Bliss Bemayle & Albanese, J*	Beyond Binary Classification: Probabilistic and Morphoscopic Approaches to Sex Estimation
3:30 – 4:00 pm	Coffee Break/ Break Café (Posters) Foyer 1				
Molecular anthropology 2 Chair: Orkin, J			Forensic anthropology 2 Chair: Cuerrier-Richer, E		
4:00 – 4:15 pm	Oman, Arra & Gravel, S	The Genetic Landscape of Malaria Resistant Adaptations in Nine East African Populations	4:00 – 4:15 pm	Spies, Maximilian et al.	Proof of concept: stable isotopes for forensic tracing in South Africa
4:15 – 4:30 pm	Kendall, Chris et al.	Ancient genomes, modern minds: Understanding how archaic DNA shapes mental health	4:15 – 4:30 pm	Holmes, Grace & Gamble, J	Using Pig Teeth as a Proxy for Understanding Heat Related Effects to Human Teeth
4:30 – 4:45 pm	Ledger, Marissa et al.	Improving Detection of Gastrointestinal Parasite Infections in the Roman Empire Using a Combination of Microscopy and Sedimentary Ancient DNA	4:30 – 4:45 pm	Cuerrier-Richer, Elisabeth	Building collaborations and knowledge through taphonomy at Canada's REST[ES] human decomposition facility
4:45 – 6:30 pm	Business Meeting CABA / Réunion d'affaires ACAB				

PODIUM SCHEDULE

Saturday/Samedi, October 31				
Time/heure	Presenters/ Présentateurs	Title/Titre	Session	Room/Salle
8:30 – 8:45 am	Siek, Thomas	Preliminary Results of a Paleoepidemiological Investigation of Non-Adult Neoplasms in Britain Using Historical Hospital Admission Records (1855-1921)	Health disease and mortality Chair: Siek, T	Pierre-de-Coubertin + Printemps
8:45 – 9:00 am	van Doren, T.P. et al.	Reading between the lines: 1918 influenza pandemic survivors in the St. John's General Hospital, Newfoundland and Labrador		
9:00 – 9:15 am	Cooke, Amanda et al.	From Miasma to Microbe: Tracing the Nosological Shift in Malaria Terminology in 19th-Century Ontario, Canada		
9:15 – 9:30 am	Roy, Alexie et al.*	Isotopic Insights into the Life of Irish Emigrants Following the Great Famine		
9:30 – 9:45 am	van Loenen, Melissa et al.*	Paleoparasitological Analysis of Pipe, Drain, and Latrine Samples From Late Antique (5th–7th c. CE) Aphrodisias, Türkiye		
9:45 – 10:00 am	Kilius, Erica et al.	Exploring social and ecological determinants of health among pastoral herders in rural South Africa		
10:00 – 10:15 am	Bigué, Rose-Ann et al.*	Large-scale biochemical characterization of neoplastic lesions in individuals from the Texas State Donated Skeletal Collection.		
10:15 – 10:30 am	Baliso, Athi et al.	Barriers to Human Identification in Forensic Anthropological Casework in the Western Cape, South Africa: A Retrospective Analysis		
10:30 - 11:00 am		Coffee Break/ Break Café (Posters)		Foyer 1
11:00 - 11:15 am	Vallerand, Amélie et al.	Stone by Stone: Simulating Neanderthal Mobility and Resource Use during MIS 3	Paleoanthropological Society of Canada (PASC) 1 Chair: Collard, M and Drapeau, M	Pierre-de-Coubertin + Printemps
11:15 - 11:30 am	Carr-Meehan, Kaia et al.*	Form and Function in Upper Palaeolithic Eyed Needles from Cova Gran de Santa Linya, Northern Catalonia, Spain: A Comparative and Experimental Investigation		
11:30 - 11:45 am	Crinson, Caroline et al.	The evolution of musicality: Preliminary results of a cross-cultural test of competing hypotheses		
11:45 - 12:00	Joanin, Kévin*	Plasticity of Phalangeal Curvature in Non-Human Hominoids		
12:00 - 12:15pm	Friesen, Sarah et al.	The role of locomotor evolution in shaping patterns of magnitudes of morphological integration in the extant hominoid and cercopithecoid hind limb skeleton		
12:15 – 2:00 pm		Lunch		
2:00 – 2:15 pm	Nagendran, Lavania et al.	The influence of hybridization on skeletal variation in <i>Canis</i> : A model for hominin evolution	Paleoanthropological Society of Canada (PASC) 2 Chair: Collard, M and Drapeau, M	Pierre-de-Coubertin + Printemps
2:15 – 2:30 pm	Abdulaziz, Ienas et al.*	Dental Morphological Signatures of Admixture in Pleistocene Homo: Metric and Crown-Outline Approaches to Neanderthal and Homo sapiens Variation		
2:30 – 2:45 pm	Boughner, Julia C. et al.	How Big Teeth Find Space in Small Faces: Lessons from White Handed Gibbons (<i>Hylobates lar</i>)		
2:45 – 3:00 pm	Deane, Andrew et al.	A comparison of incisor crown resistance to bending and shear forces in extant anthropoid superfamilies and its implications for fossil anthropoid dietary inference		
3:00 – 3:30 pm		Coffee Break/ Break Café (Posters)		Foyer 1
3:30 – 3:45 pm	Chazan, Michael et al.	Recent research on early traces of fire at Wonderwerk Cave, South Africa	Paleoanthropological Society of Canada (PASC) 3 Chair: Collard, M and Drapeau, M	Pierre-de-Coubertin + Printemps
3:45 – 4:00 pm	Riel-Salvatore, Julien et al.	Preliminary results from the 2025 and 2026 excavations at the Mousterian site of Arma delle Manie (Finale Ligure, Italy)		
4:00 – 4:15 pm	Stock, Jay et al.	The Scale of Destinies: Cultural and life history drivers of the evolution of human skeletal gracilization		
4:15 – 4:30 pm	Collard, Mark et al.	Acquired spinal conditions in evolutionary perspective: A century-old hypothesis revisited		
4:30 – 4:45 pm		Closing remarks / Remarques de conclusion		

POSTER SCHEDULE

Thursday/Jeudi, October 29			
SESSION 1: 8:30 am – 1:00 pm			
Number of poster	Presenter/Présentateur	Title/Titre	Session name/nom
1	Bari, Dawn	Reconstructing the Geographic Origins of Individuals Buried in the Saint-Louis Cemetery in Québec Using Stable Isotopes	Diet, mobility & biogeochemistry
2	Dickenson, Rachel	Stable isotope (C, N, S) analysis reveals seal dominated diet for north slope Birnirk Ancestors	
3	Gilmore, Charlotte	Sudanese Nubian Dental Microwear: Investigating differences in dental microwear across temporal groups at Wadi Halfa in Sudanese Nubia	
4	Holland, Sydney	Dietary analysis of bone collagen and structural carbonate in four pre-modern Dutch communities using stable carbon and nitrogen isotopes	
5	Houle, Etienne et al.*	Investigating the Impact of Italian Incastellamento on Human Diets: San Giuliano (Lazio, 11th–13th Centuries CE) as a Case Study	
6	Lovatt, Charmaine	Stable carbon and nitrogen isotope investigation of infant feeding practices in pre-modern Alkmaar, the Netherlands	
7	O'Brien, Conall et al.*	Stable Isotope Dietary Reconstruction Using $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ at Bir el Jebbana, Carthage, Tunisia During the Late Roman and Vandalic Periods	
8	Petit, Maxime & Williams J*	Dentine as a Record of Early-Life Nutrition: Stable Isotope Analysis of Carbon and Nitrogen Using Micropunch Sampling	
9	Plante, Laurence	Weaning in Early Bronze Age Jordan: What Sr/Ca and Ba/Ca Trace Element Ratios in Permanent Molars from Wadi Faynan 100 Reveal	
10	Simpson, Rachel	Lead exposure in a British Royal Navy population from English Harbour, Antigua: Multi-tissue analysis and high-resolution element mapping	
11	Thompson, Amy	The People of Sa Mitza Salida: A Case Study on Sardinian mobility during the Roman Period through stable isotope analysis of $\delta^{34}\text{S}$	
12	Barnard, Cameron * & Stark R*	Care, Compassion, and Christ: Living with Tuberculosis at Ghazali, a Medieval Nubian Monastery	Bioarchaeology and paleopathology
13	Betsinger, Tracy	An Amalgam Assault? A Case Study Analysis of Dental Amalgam Composition and Toxicity Risk from 18th-19th Century Halifax, NS	
14	Clack, Grace & Brickley M*	Beyond the Death Record: Paleopathological Interpretation of Auricular Pathology in a Nineteenth-Century Child from Guelph, Ontario	
15	Dai, Zhangzhuoran	Injury and Lived Experience in a Yuan Dynasty (13th-14th c CE) Elite Family Cemetery	
16	Dion-Allard, Émilie	Santé et croissance osseuse d'enfants euroquébécois aux 18e-19e siècles : exploration de la variation morphologique des os longs en lien avec le scorbut et le rachitisme	
17	Geddes, Courtney	Bioarchaeological Investigation of Tuberculosis Using Computed Tomography: Case Studies from the Peruvian Central Coast	
18	Hymanyk, Christine et al. *	Paleopathological estimation of early-age survivorship from four British Industrial Revolution sites	
19	Man, Xingyu et al.*	Beyond Human Sacrifice: Health, Trauma, and Disease at the Western Zhou Hengshui Cemetery	
20	Sithivinayagam, Abenaya et al.*	A Quest to Recover Rickettsia prowazekii and Investigate Relatedness Among Irish Immigrants from a 19th Century Cemetery	
21	Trentos, William et al.*	Piecing the Puzzle: Paleopathological Case Studies from a Fragmentary and Commingled Burial at Wadi Faynan 100	
22	Wood, Robyn & Gamble J*	A Biosocial Frailty? An Intersectional Adaptation to an Index of Human Frailty	
23	Andersen, Hanne et al.*	Did Children Receive Different Burials? The Mortuary Treatment of Nonadults in Pre-Hispanic Peru	
24	Barlow, Nicole et al.*	Assessing representation bias in human skeletal assemblages and its implications for the Ontario Guelph collection (1827-1853 CE)	
25	Bartel-Ens, Skye*	Preliminary analysis of culturally modified human teeth from Sacsayhuamán, Cusco, Peru.	
26	Gilmour, Rebecca	Between exclusion and belonging: a case of trauma and burial at Roman <i>Carnuntum</i> , Austria	
27	Ribot, Isabelle	The Emergence of a School of Human Bioarchaeological Excavation in Quebec: Results and Reflections on an Initial Field Campaign.	

POSTER SCHEDULE

Thursday/Jeudi, October 29			
SESSION 2 : 1:30 – 5:00 pm			
Number of poster	Presenter/Présentateur	Title/Titre	Session name/Nom
1	Bennett, Mikaël	Investigating the Development of Epigenetic Traits Along the Superior Border of the Scapula	Skeletal biology, taphonomy, and methods
2	Chozas-Tanael, Isabel & Brickley M*	Utilising Non-Standard Sex Estimation Methods on Adult Individuals from Guelph, ON (1827-1853 CE): A Preliminary Investigation	
3	Eves, Sarah Kay & Rogers T*	Forensic Age Estimation Using the Scapula: Validation of a Population Neutral Method	
4	Ghalem, Yasmine	A Review of Machine Learning Applications on Human Crania for Sex Estimation and Population Assessment	
5	Goodarzi, Pegah et al.*	How Accurately Can Dental and Skeletal Development Predict Menarcheal Status? A Test of the DeWitte and Lewis Criteria	
6	Roche, Trinity & Rogers T*-	Seeking Validation: A Forensic Anthropological Test of Luna and Colleagues' Method for Sex Assessment of Non-adult Skeletons Using CT Scans.	
7	Sierra-Serrano, Elena	The Value of the Retroauricular Area of the Ilium for Adult Age Estimation	
8	Spake, Laure	Stability in the rate of secondary dentine deposition across diverse populations: Implications for age estimation from pulp to tooth area ratio	
9	Thomson-Rogers, Anna	The Impacts of Skeletal Element Preservation on Ancestry Estimations in Forensic Anthropology	
10	Blechman, Michal & Holland E*	Decomposition in Manitoba: Establishing a Timeline	
11	Castillo Ramirez, Ximena et al.*	Analyzing taphonomic processes in contemporary Mexican femora using the Castillo Blas (2026) pilot scoring system.	
12	Hunt, Fallon & Rogers T*	Taphonomic study of long-term burials	
13	Van Der Heide, Jessica & Beauchamp A*	Taphonomic Bone Surface Modifications: A Winter in Northern Ontario	
14	Wong, Kelly	Taphonomic Changes to Fresh Bone in Freshwater and Saltwater Environments: The Influence of Salinity and Submersion Duration	
15	Brent, Katherine*	Old Friends and Curious Acquaintances: Re-Shaping Biological Anthropology's Morphological Methods Toolkit	
16	Clark, Sophie*	Evaluating the Reliability of Periodontal Disease Scoring Methods in Bioarchaeology	
17	Heinrichs, Esther	Pelvic Girdle Reconstruction: From 3D Scans to Geometric Morphometric Analysis	
18	Schillaci, Michael	Sample size requirements for estimating the population covariance of two variables: results from a preliminary analysis using random resampling of variables from Howells data set	
19	Warner, Emma et al.*	Techniques for 3D visualization of X-ray microcomputed tomography images: a votive mummified ibis case study	
20	Yoh, Naila	Are processes of tooth crypt and crown formation conserved across centuries in British non-adult humans?	
21	McMillan, Hazel	Introducing the Onion Method: A novel method for incremental sampling of dentine growth layers for stable isotope analysis	
22	Yarie, Jenna et al.*	Taphonomy in 3D! The Use of a Free Photogrammetry App to Assess Taphonomic Alterations and Pathological Conditions on Bone	
23	Ferguson, Cassidy	Sex Assessment for Fragmented Forearm Elements Using Cross-Sectional Geometry	

POSTER SCHEDULE

Friday/Vendredi, October 30			
SESSION 3: 8:30 am – 1:00 pm			
Number of poster	Presenter/Présentateur	Title/Titre	Session name/Nom
1	Bădescu, Iulia	Primate Play and the Classificatory Making of Human Nature	Primateology
2	Chell, Coral	Social Behaviour of the Critically Endangered Coquerel's sifaka (<i>Propithecus coquereli</i>) in a human-modified landscape, northwestern Madagascar	
3	Cheng, B. et al.*	The impact of forest fragmentation on vegetation and capuchin monkeys in Costa Rica	
4	de Castro Nascimento, Marina	Associations between stress-indicative behaviours and hematological parameters in rescued capuchin monkeys (<i>Sapajus spp.</i>): Implications for welfare and conservation	
5	Han, Jisung	Inferring anthropoid locomotor behaviour from manual phalangeal articular surfaces and collateral ligament fossae	
6	Heppell, Médrick et al*	L'influence du statut reproducteur sur l'utilisation spatiale des strates arboricoles par les femelles colobes magistrats (<i>Colobus vellerosus</i>)	
7	Jovanovic, Helena	Mantled Howler Monkey (<i>Alouatta palliata</i>) behaviour across different tree canopy levels in a fragmented tropical rainforest	
8	Komza, Klara	Metatarsal phenotypic plasticity in wild and captive chimpanzees	
9	Lawrence, T	Closing the Gap: Investigating the Effect of Habitat Quality on Positional Behavior in Madagascar's Endangered Lemurs	
10	Li, Charlotte(Minbei) & Bolt L*	Time-of-day and inter-species variation in activity budgets of mantled howler monkeys (<i>Alouatta palliata</i>) and Geoffroy's Spider Monkeys (<i>Ateles geoffroyi</i>) at La Suerte Biological Field Station, Costa Rica	
11	Oliveira, I. et al.*	How consistent is animal personality across life stages?: Comparing behavioural consistency in juvenile and adult captive capuchin monkeys (<i>Sapajus spp.</i>)	
12	Oliveira, Julio	Capuchin monkeys on social media: Does image context influence social media user response?	
13	Pichocki, Matthew & Bolt L*	Examining anthropogenic edge effects on mantled howler monkey (<i>Alouatta palliata</i>) activity budgets in a fragmented forest in Costa Rica	
14	Sciortino, Cristina	Beyond the blink of an eye: Evaluating field video methods for AI-assisted behavioural monitoring of free-ranging Japanese macaques	
15	Tucker-Gritt, Coco	Adapting Body Condition Scoring for Wild Arboreal Primates: Struggles Between the Trees Beneath Rwenzori Angolan Colobus (<i>Colobus angolensis ruwenzorii</i>)	
16	Walker-Bolton, Amber	Conservation Education in Southern Madagascar: regular conservation club meetings correlate with learning during a field trip for adolescents	
17	Nakano, Robyn & Kalan A*	Aging Scars from Chimpanzee Accumulative Stone Throwing	
18	Kushniruk, Aimee et al.*	The impact of sex differences on the feeding strategies of mantled howler monkeys (<i>Alouatta palliata</i>) in a fragmented Costa Rican forest	
19	Djevalikian-Couture, Nève	Coordination of Movement Phases in Chimpanzee-Human Signed Conversations	
20	Wiwchar, Romi & Hopewood D*	Examining Environment as a Selective Pressure on Cercopithecoid Vocal Complexity	
21	Brulotte, Marika*	Dental Microwear Analysis of Domestic Dogs from Uivak Point: A Pilot Study of Diet and Human-Animal Interactions	Human-animal & multispecies relationships
22	Buchanan, Ash	Identifying the Role of Fly Larvae and Decomposing Flesh in Human and Neanderthal Diets Using Stable Isotope Analysis	
23	Derian, Alexandra	Inuit bowhead whaling as a driver of fox synanthropy in Inuit Nunangat	
24	Diemer, Em	Amelogenin-based sex determination of canids to explore human-dog interactions	
25	Johnstone, Brenna et al.*	Loosen up the buttons: Tracing cattle origins and the lived experiences of those working at the Antigua Naval Dockyard and Related Archaeological Sites	
26	Mander, Kayla*	An Osteobiographic Approach: The Joint Internment of Two Dogs from a 19th-Century Urban Farmstead in Southern Ontario	
27	Moran, Kaelyn & Rogers T*	Animal Vs. Human: North American Species Dental Comparison of Incisors, Canines & Premolars.	

POSTER SCHEDULE

Friday/Vendredi, October 30			
SESSION 4: 1:30 pm – 5:00 pm			
Number of poster	Presenter/Présentateur	Title/Titre	Session name/Nom
1	Boorman, Charlotte & Tripp L*	Biocultural Interactions Between Tuberculosis and 1918 Influenza: Preliminary Findings of a Potential Syndemic in the Cariboo District of British Columbia	Health, Aging and Society
2	Hertz, Madelyn	Healthfulness from Lake Erie to Hudson Bay: Analyzing differences in perceived health and wellbeing relative to chronic conditions across Ontario health regions	
3	Kim, Sophie*	Representativeness and the archive: Preliminary findings of Vancouver death certificates from 1917 and 1918	
4	Magalhaes-Filion, Maïa & Mant M*	Zebras in the Archives: A biocultural analysis of historical rare disease experiences	
5	Metereo, Justine	A Potential Neurological Syndrome in the Acadian region, N.B.: Uncovering Cases, Controversies, and Possible Explanations	
6	Murray, Nicola	Secular change in body composition, but not growth, over 30 years in gymnasts from Upstate New York	
7	Nouri, Mona*	The Impact of Access to Care and Vaccine Hesitancy on Measles Immunization Rates in Canada	
8	Oladapo, Tinu & Wissler A*	The Effects of the 1918 Influenza Pandemic on Infant Mortality	
9	Pei-Middleton, Alyssa et al*	Using mouse models to investigate human skeletal aging: addressing ambiguity in bioarchaeological interpretations	
10	Philip, Lydia	War Exposure and Early Life Adversity: Countervailing effects on reproductive outcomes of Vietnamese survivors of the American War	
(11)	Abbas, Noor	Dreaming Social During Ramadan (poster withdrawn)	
12	Vicente-Sarmiento, Chloe-Alexandra	Reassessing Social Identity in Andean Mummy Bundles: Mortuary Practice on the Central Coast of Peru	
13	Campeau, Hannah	Optimizing RNA Extraction Strategies to Overcome Inhibition and Maximize Recovery in Ancient Sediment Samples	Molecular anthropology
14	Cozzarelli, Arianna et al.*	Investigating Medieval Nubian Population History Using Ancient Genome-Wide Data	
15	Dolan, Katherine & Szpak P*	Interpreting Whole Diet from Whole Bone: Developing Minimally-Destructive Methods for Stable Isotope Analysis of Bone and Enamel Bioapatite on EA-IRMS	
16	Hauptman, Eric et al.*	Climatic Correlates of Ancient DNA Degradation in Globally Distributed Mitochondrial Genomes	
17	Kaufman, Benjamin et al.*	Lessons in the Laboratory: A workshop on genetic training and metagenomic analysis in Québec's first bioarchaeological field school	
18	Kuziek, Adrienne et al.*	"I didn't really know what it was": Understanding outreach as a tool to encourage high-school students' engagement with anthropology.	Ethics, education & public representation
19	Levin, Avery*	Recommendations for Decolonizing Human Evolution in Museums Spaces	
20	Redlick, Kristina	Provenance as Pedagogy: Reconsidering Learning with Osteological Teaching Collections	
21	Shaw, Tabitha	Murder in the academe: A review of fictional representation in UK and Irish detective or murder mystery television series	
22	Najm, Emma	Necroviolence in Al-Bassa, Palestine: A Case Study on Grave Desecration and Resistance	
23	James-Cavan, Bryn	Buried Lives: Commemorating Valley View Residents	

POSTER SCHEDULE

Saturday/Samedi, October 31			
SESSION 5: 8:30 am – 4:00 pm			
Number of poster	Presenter/Présentateur	Title/Titre	Session name/Nom
1	Drapeau, Michelle	The transverse arch of the foot: morphology and variation in Simiiformes	PASC
2	Bousquié, Lucile	Quelles enthèses des mains pour étudier la locomotion ?	
3	Touchant, Maureen*	Morphogeometric study of craniofacial morphology related to third molar agenesis in humans	
4	Elliott, Jack et al.*	New Life for Old Data: Improving Access to Hominin Fossil Heritage through Digitization of the Sperber Collection	
5	Tiseo, Layla	Split Open: The Study of Ochre Applicators at Caverna delle Arene Candide	

CABA–ACAB 2026: Information for presenters

In-person oral presenters

Bring your presentation on a USB drive and upload it to the laptop in your assigned room before your session begins.

- **Morning presenters:** Arrive at 8:15 a.m. on the day of your presentation to upload and check your slides.
- **Afternoon presenters:** Upload your slides immediately after the morning talks, before leaving for lunch, or 15–20 minutes before the afternoon session begins.

A volunteer or organizer will be available to help. Please check that your slides, videos and audio work correctly.

Virtual presenters

Zoom links will be emailed to virtual attendees and presenters. Virtual presenters will share their screen and deliver their talk through Zoom. Their presentation will be shown in the conference room and will also be visible to attendees joining online.

As a reminder to all oral presenters, each presentation has a total time slot of 15 minutes, including questions. Please keep your talk to a maximum of 12–13 minutes, leaving time for one or two questions. Presentations that exceed the 15-minute limit will be interrupted to keep all sessions on schedule.

Poster presentations

Find your poster session and poster number in the program. Pin your poster in the space marked with the corresponding number. Thumbtacks will be provided. Please be beside your poster during the coffee-break times listed below and leave it on display through the end of the morning or afternoon talks.

Poster session	Put up your poster	Be beside your poster	Take down your poster
1: Thursday, October 29	Before 8:30 a.m.	10:15–10:45 a.m.	By 1:30 p.m.
2: Thursday, October 29	1:30 p.m.	3:30–4:00 p.m.	Around 5:15 p.m., or before leaving for the evening
3: Friday, October 30	Before 8:30 a.m.	10:15–10:45 a.m.	By 1:30 p.m.
4: Friday, October 30	1:30 p.m.	3:30–4:00 p.m.	Around 5:00 p.m., or before leaving for the evening
5: Saturday, October 31	Before 8:30 a.m.	10:30–11:00 a.m. and 3:00–3:30 p.m.	At 4:30 p.m.

Morning posters may be removed after the morning talks before leaving for lunch, or left available for browsing, provided you return to remove them by 1:30 p.m. You do not need to remain beside your poster during lunch.

Optional additional display on Saturday

Thursday and Friday presenters are welcome to display their posters again on Saturday in any space not reserved for Session 5. Saturday's scheduled presenters have priority for their assigned spaces.

ACAB-CABA 2026 : Informations pour les présentatrices et présentateurs

Communications orales en personne

Apportez votre présentation sur une clé USB et transférez-la sur l'ordinateur portable de votre salle avant le début de votre séance.

- **Présentations du matin** : Arrivez à 8 h 15 le jour de votre présentation pour transférer et vérifier vos diapositives.
- **Présentations de l'après-midi** : Transférez vos diapositives immédiatement après les communications du matin, avant de partir dîner, ou de 15 à 20 minutes avant le début de la séance de l'après-midi.

Une personne bénévole ou un membre du comité organisateur sera sur place pour vous aider. Veuillez vérifier le bon fonctionnement de vos diapositives, vidéos et fichiers audio.

Présentations à distance

Les liens Zoom seront envoyés par courriel aux personnes qui participent ou présentent à distance. Les présentatrices et présentateurs à distance partageront leur écran et donneront leur communication sur Zoom. Leur présentation sera diffusée dans la salle du congrès et sera également accessible aux personnes qui suivent le congrès en ligne.

Nous rappelons à toutes les personnes présentant une communication orale que chaque présentation dispose d'un créneau total de 15 minutes, période de questions comprise. Veuillez limiter votre présentation à un maximum de 12 à 13 minutes afin de laisser du temps pour une ou deux questions. Les communications dépassant la limite de 15 minutes seront interrompues afin de respecter l'horaire des séances.

Présentations par affiche

Consultez le programme pour connaître votre séance d'affiches et le numéro de votre affiche. Fixez votre affiche à l'emplacement portant le numéro correspondant. Des punaises seront fournies. Veuillez être près de votre affiche pendant les pauses-café indiquées ci-dessous et la laisser en place jusqu'à la fin des communications du matin ou de l'après-midi.

Séance d'affiches	Installation	Présence près de votre affiche	Retrait
1 : jeudi 29 octobre	Avant 8 h 30	De 10 h 15 à 10 h 45	Au plus tard à 13 h 30
2 : jeudi 29 octobre	À 13 h 30	De 15 h 30 à 16 h	Vers 17 h 15, ou avant de partir pour la soirée
3 : vendredi 30 octobre	Avant 8 h 30	De 10 h 15 à 10 h 45	Au plus tard à 13 h 30
4 : vendredi 30 octobre	À 13 h 30	De 15 h 30 à 16 h	Vers 17 h, ou avant de partir pour la soirée
5 : samedi 31 octobre	Avant 8 h 30	De 10 h 30 à 11 h et de 15 h à 15 h 30	À 16 h 30

Les affiches du matin peuvent être retirées après les communications du matin, avant de partir dîner, ou laissées en place pour consultation, à condition de revenir les retirer au plus tard à 13 h 30. Vous n'avez pas à rester près de votre affiche pendant le dîner.

Possibilité d'exposer à nouveau votre affiche le samedi

Les personnes ayant présenté une affiche le jeudi ou le vendredi peuvent l'exposer à nouveau le samedi dans un emplacement non réservé à la séance 5. Les présentatrices et présentateurs inscrits à la séance du samedi ont priorité pour leurs emplacements assignés.

PODIUM ABSTRACTS/RÉSUMÉS

Abstracts are arranged by conference session and presentation time. Résumés sont classés par session de conférence et heures.

THURSDAY • Health and Aging

Chair: Leela McKinnon and James K. Gibb

8:45

Sleep Timing, Sleep Regularity, and Circadian Function in Rural and Urban Wixárika Communities in Mexico

Leela McKinnon 1,2; Eric C. Shattuck 1,3,4; Igor Ramos Herrera 5; René Crocker Sagastume 5; Quetzabel de la Cruz 5; Paritemai González Hernández 5; Thankam Sunil 6; David R. Samson 1,2

1 University of Toronto Mississauga, Department of Anthropology; 2 University of Toronto Mississauga, Centre for Urban Environments; 3 Florida State University, Department of Anthropology; 4 Florida State University, Native American and Indigenous Studies Center; 5 Universidad de Guadalajara, Departamento de Salud Pública, Centro Universitario de Ciencias de la Salud; 6 University of Tennessee Knoxville, Department of Public Health

Increasing industrialization and urbanization have been implicated in driving changes to sleep and circadian patterns on a global scale. Although sleep duration is a well-established predictor of health, evidence suggests that sleep regularity is also an important predictor of overall mortality but remains underreported in sleep research. Here, we used data generated from wrist-worn accelerometers to compare sleep timing, the sleep regularity index (SRI), and the Circadian Function Index (CFI), a measure of circadian rhythmicity, between urban and rural Indigenous Wixárika communities in Mexico ($n=124$; mean age=33.4 years; 68% women). We hypothesized that urban participants would have less regular sleep schedules, weaker circadian rhythmicity, and later sleep timing compared to those living in the rural community. Using linear regression, we compared SRI, CFI, bedtime, and waketime by location, controlling for occupation, age, and gender. As predicted, we found later bedtimes (estimate=0.918, $p<0.001$) and waketimes (estimate=0.859, $p<0.001$) in the urban sample. Surprisingly, we found no urban-rural differences in SRI (estimate=-0.010, $p=0.960$) or CFI (estimate=0.056, $p=0.772$), suggesting that later sleep timing does not necessarily imply less stable daily rhythms. Women had significantly higher CFI than men (estimate=0.421, $p=0.035$). Additionally, we conducted exploratory analyses using occupation categories to predict our main variables of interest, finding that artisan work was associated with later sleep timing yet higher sleep regularity, while occupations with externally scheduled work hours were associated with lower circadian function. We also found that jobs characterized by physical manual labour were associated with stronger circadian function and earlier sleep timing. The urban context remained a consistent predictor of later bedtimes in the occupation models, strengthening the evidence that urbanization is a robust predictor of later sleep timing. These results highlight the role of both social and environmental factors in shaping sleep timing, regularity, and circadian function.

9:00

Breastfeeding May Buffer the Association Between Prenatal Stress and Child Emotional Problems

Samantha M. Stead 1,2; Piush Mandhane 3; Theo J. Moraes 4; Jacqueline Pei 5; Elinor Simons 1; Padmaja Subbarao 6,4; Stuart E. Turvey 7; Meghan B. Azad 1,2

1 University of Manitoba, Department of Pediatrics and Child Health; 2 Children's Hospital Research Institute of Manitoba, Manitoba Interdisciplinary Lactation Centre; 3 University of Alberta, Department of

Pediatrics; 4 University of Toronto, Department of Pediatrics; 5 University of Alberta, Department of Educational Psychology; 6 McMaster University, Department of Medicine; 7 University of British Columbia, Department of Pediatrics

Stress during pregnancy is associated with an increased risk of emotional problems in children, potentially through alterations in fetal brain development. Importantly, brain development continues postbirth, when experiences can modify developmental trajectories. Evidence suggests that positive postnatal experiences (e.g., sensitive caregiving) can buffer the effects of prenatal stress, but whether breastfeeding can provide a similar buffer remains underexplored. The CHILD Cohort study is a prospective study following Canadian mothers and their children ($n=3,454$) from pregnancy onwards. Previous CHILD research has linked prenatal stress and reduced breastfeeding to child emotional problems, but has not examined their interaction. Child emotional problems were assessed at 5 years using the Child Behaviour Checklist, generating a standardized score, whereby higher scores indicate more problems (range=33-81). Maternal psychological stress was assessed during pregnancy (26 and 35 weeks) and postpartum (6 and 12 months) using the Perceived Stress Scale (PSS). Latent class mixed models identified trajectories of PSS scores across the perinatal period. Breastfeeding duration and exclusivity were reported up to 2 years postpartum. Linear regression showed an interaction ($p=0.02$) between exclusive breastfeeding and prenatal stress trajectories in relation to child emotional problems at 5 years. Exclusive breastfeeding at 6 months was associated with fewer emotional problems in children, with a greater reduction in children of prenatally stressed mothers ($\beta=-7.1$, 95% CI=-11.7 to -2.5, $n=197$) compared with non-prenatally stressed mothers ($\beta=-1.9$, 95% CI=-3.3 to -0.5, $n=1540$). Models were adjusted for potential confounding variables, including income, child sex, and siblings. Given the prevalence of psychological stress during pregnancy, supporting families who want to breastfeed may mitigate child emotional problems. Future work will investigate whether human milk bioactive components contribute to the potential buffering effects of breastfeeding on child emotional problems.

9:15

Depressive Symptoms Prospectively Predict Inflammation among Sexual Minority Older Adults in Canada: Evidence from the Canadian Longitudinal Study on Aging

James K Gibb 1,2,3,4; Sofia Carrera 4; David J. Kinitz 5; Eric T. Klopach 6; Keegan Krause 4; Thomas W McDade 4,7

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Objectives: Sexual minority (SM) populations experience elevated psychosocial stressors that may influence inflammatory processes and contribute to poor mental health. Inflammation represents a potential biological pathway linking psychosocial stress to chronic disease, yet longitudinal evidence among SM populations remains limited. We investigated whether depressive symptoms prospectively predict systemic inflammation among SM older adults. Methods: We analyzed survey-weighted data from 455 SM participants in the Canadian Longitudinal Study on Aging. Linear regression models predicted log-transformed C-reactive protein (CRP), a widely used biomarker of systemic inflammation, at follow-up from baseline depressive symptoms, adjusting for baseline CRP

and demographic, behavioral, and socioeconomic covariates. Results: Depressive symptoms were not associated with CRP cross-sectionally at baseline ($\beta=0.011$, $SE=0.014$, $p>.05$). However, higher baseline depressive symptoms predicted higher CRP approximately three years later ($\beta=0.035$, $SE=0.010$, $p<.001$), independent of baseline CRP and covariates. This association remained after BMI adjustment ($\beta=0.033$, $SE=0.010$, $p<.001$). Baseline depressive symptoms remained associated with follow-up CRP when accounting for changes in depressive symptoms, whereas within-person symptom change was not independently associated with CRP. Conclusions: Depressive symptoms prospectively predict systemic inflammation among SM older adults. Findings suggest that persistent depressive symptom burden may contribute to inflammatory processes relevant to chronic disease and healthy aging in SM populations.

9:30

Reconstructing Brandon's 20th century mortality profile by age and sex

Ashley Austin 1

1 University of Manitoba, Department of Anthropology

The preservation of archival materials, including cemetery records, is critical for demographic, epidemiological, and mortality studies of populations. Through the development of the Canadian Pacific Railway, Brandon (Manitoba's second largest city) experienced a quick transition from settlement to city, fuelled by immigration and natural population growth. Located in the heart of the prairies, Brandon became a hub of agricultural activity in the 1880s. The rise in urbanization and population size meant that Brandon, alongside other early cities of the late 1800s and early 1900s, experienced sanitation challenges and periodic infectious disease epidemics that incentivized public health reforms. Since vital event records such as death registrations remain closed to research in Manitoba, it is challenging to evaluate evolving mortality trends for individual cities in the province. In Brandon, two sources of data help to move past these challenges: a local funeral home log book (maintained between 1895 to 1908) and the City of Brandon's burial records for the Brandon Municipal Cemetery (using data abstracted from 1908 to 1954). Both sources have recorded causes of death, which allows for cause-specific mortality analyses, including leading causes of age-specific mortality over time and the evolution of the city's mortality profile through historical events, like wars, pandemics, and economic hardship. A dataset of 7,790 interments (limited to those who actually died in Brandon) was coded and analyzed, including 3,292 (42.4%) females and 4,488 (57.6%) males, to reconstruct the age-specific mortality profiles of females and males. Three particular categories were examined: infectious diseases, infant mortality, and external/accidental causes of death, which contributed to 4,238 (54.4%) causes of death in the records. Mortality in these categories were impacted by occupational differences, and sex and age, in addition to access to medical care and medical innovation during the study period.

9:45

Dentition, Third Hand, and Community Care: Bioarchaeological Insights from the Formative Period Site of Cerro Pacifico, Peru

Luis Manuel González 1; Milton Lujan 2; Aleksa Alaica 1

1 The University of British Columbia, Department of Anthropology; 2 Independent Scholar

Across the globe, progressive tooth wear is related to diet and cultural use of teeth. In the Andes, often high individual levels of tooth wear are associated with the sandy grit in coastal diets. Extensive tooth wear is classified as an experience of old age. In these contexts, care is invoked as a practice for easing the pain of the elderly. Advanced tooth wear in younger individuals is often considered an isolated pathology, but a unique assemblage of human remains from the Late Archaic/Early Formative (3000–1800 BCE) site of Cerro Pacifico in the Lima Province of Peru presents

an important case study where various individuals of varying ages present extensive tooth wear. This brings to debate the way we pathologize tooth wear for some age groups and not in others. This collection of over 30 human burials ranging from 6 months to 50 years provides an opportunity to assess the way we examine dental health. In this paper, we deconstruct the pathology of tooth wear and consider the contextual circumstances for tooth wear in younger individuals. Instead of classifying tooth wear as an impediment to daily practices, we propose that care was a community strategy to participate in food provision activities.

10:00

One step at a time: Insights into Early Bronze Age Mobility and Social Organization at Wadi Faynan 100 using minimally destructive strontium isotope ratio analysis

Mah, Jessica; Alexis Dolphin 1; Russell Adams 1; Chris Yakymchuk 2

1 Department of Anthropology, University of Waterloo, Waterloo, Ontario, Canada; 2 Department of Earth and Environmental Sciences, University of Waterloo, Waterloo, Ontario, Canada

Despite being a site of archaeological study since 1995, the Early Bronze Age site of Wadi Faynan 100 (WF100) remains poorly characterized when it comes to the social organization and lives of those who are now buried in its extensive cemetery. To provide regionally novel insights into the mobility and social organization of these individuals, this study employed a minimally destructive method of sequential strontium isotope ratio analysis in human dentition using Laser – ablation – multicollector – inductively coupled – mass spectrometry (LA-MC-ICP-MS). The sample population consisted of 29 adult human teeth including third molars, first molars, premolars, canines, and incisors, in addition to two deciduous molars. Timeseries results produced by these samples were compared to a local range established by 11 faunal sample Sr isotope ratios consisting of shells, rodent teeth, and goat teeth. This produced temporospatial ratios specific to mobility during childhood development, and the results suggest variable patterns of mobility at the site. This study adds to current discourse on the nature of social complexity during the Bronze Age and these supports regional and subregional analytical approaches for exploring social complexity in the Early Bronze Age, and further demonstrate the advantages to, and challenges of, future LA-MC-ICP-MS applications for bioarchaeological studies in Jordan.

THURSDAY • Skeletal Biology

Chair: Edwin Dickinson

10:45

Signatures of bipedality and other locomotor modes in the rotational profile of the lower limb

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The rotational profile of the lower limb is comprised of femoral torsion (FT), tibial torsion (TT), and talar neck angle (TNA). In humans, these measurements are related to hip mobility and foot positioning during walking and standing. This suggests a link to primary form of locomotion, but there have been limited examinations of the rotational profile across primates. Here, we compare the rotational profile among bipedal humans ($n = 39$) and 10 taxa of non-human primates who utilized four primary locomotor modes: terrestrial quadrupedalism ($n = 38$), arboreal quadrupedalism ($n = 72$), suspension ($n = 65$), and knuckle-walking ($n = 39$). Suspensory primates were expected to have lower FT due to high degrees of external rotation possible at the hip. Bipedal humans were expected to exhibit a unique signature of high TT and low TNA relative to other locomotor modes related to the external

rotation at the foot during locomotion and adducted hallux. All measurements were taken on whole-bone 3D models using shape-fitting methods. We assessed differences in the rotational profile that might be a result of locomotor mode using ANOVA, intra-individual correlations, and principal component analyses (PCA). In femoral torsion, knuckle-walkers and suspensory primates exhibit lower torsion than other locomotor modes, but there is substantial overlap among groups. Additionally, bipeds exhibit significantly higher TT and significantly lower TNA than primates using other forms of locomotion. Intra-individual correlations and PCAs supported this, as bipeds were best distinguished from non-human primates using other locomotor modes by the combination of high TT and low TNA. FT is not a strong indicator of locomotor mode, but the combination of high TT and low TNA is unique to bipeds. This combination of traits is indicative of a foot oriented with the long axis near the sagittal plane and an adducted hallux.

11:00

Get a grip: arboreal locomotion and the evolution of the pseudthumb

Edwin Dickinson 1; Melody W Young 2; Michael C Granatosky 3

1 University of Calgary, Department of Anthropology and Archaeology; 2 Duke University, Department of Biological Sciences; 3 University of Tennessee Knoxville, Department of Ecology and Evolutionary Biology

While the mammalian hand represents numerous morphological innovations, pseudthumbs represent one of the great anatomical enigmas of our clade – having evolved independently in rodents, musteloids, ursids, and primates. While in some taxa (e.g., the giant panda) this is interpreted as an adaptation towards enhancing manual dexterity, a competing hypothesis – in which the pseudthumb acts to enhance stability during arboreal locomotion – has been proposed in other lineages. Here, we combine morphological and experimental techniques to elucidate a potential locomotor role for the pseudthumb using two arboreal taxa: the red panda (*Ailurus fulgens*) and the aye-aye (*Daubentonia madagascariensis*). Using high-resolution pressure sensors, we collected manual pressures during both terrestrial and arboreal walking. These data were then divided into 10 distinct regions of the manus. We demonstrate that contact areas, forces, and pressures from the pseudthumb all increase during arboreal locomotion relative to a terrestrial gait. We also demonstrate active modulation of pressures generated by the pseudthumb throughout the duration of single strides. Simultaneously, we see a corresponding decrease in the contact areas, forces, and pressures generated by the true thumb (digit 1). Through this lens, we could interpret pseudthumb grasping not as a mechanism to absolutely increase grasping forces, but rather as a means of redirecting grasping forces by allowing for the generation of a more wrist-based and medially-oriented grasping force when traversing arboreal supports. This data – the first experimental analysis of pseudthumb usage – suggests a multi-faceted evolutionary role for this anatomical feature.

11:15

Effects of exercise and postural change on subchondral and trabecular bone properties in the distal femur.

John D. Polk 1; Hyunggwil Song 2; Mariana E. Kersh 3

1 University at Albany, Anthropology; 2 Chubuk University, Engineering; 3 University of Illinois Urbana Champaign, Mechanical Engineering

Subchondral and trabecular bone properties are commonly used to make inferences about the joint loading histories in living and fossil primates. Such inferences rely on associations between morphology and behavior that have limited experimental support, and it remains unclear how variation in mechanical stimuli during exercise results in spatially specific changes in bone properties. Our work presents results of an experimental intervention in an ovine model that tests how alterations in exercise level and postural

change influence bone properties in the medial femoral condyle. Sheep were divided into two treadmill exercise groups: flat (n=11), incline (n=11) and non-exercised control (n=8). Sheep were exercised twice daily for 60 days at moderate walking speeds. Subchondral thickness, and density, as well as trabecular BV/TV, thickness, density and anisotropy were measured by microCT based imaging. The overall spatial response to exercise is heterogeneous both across the joint and with increasing depth from the surface. Subchondral thickness and density increased with exercise. Trabecular thickness and BV/TV increased in some areas, while density changes were not consistent. The medial side of the joint showed greater response to exercise than elsewhere on the joint. Sheep exercised on inclines had significantly lower joint range of motion, and this was reflected in more localized changes in subchondral thickness. We discuss the implications of this work for the interpretation of postural and locomotor behavior in living and fossil primates.

11:30

Trabecular anisotropy in 3D: a high-resolution structural proxy of functional history*

Benjamin Z. Rudski 1; Natalie Reznikov 2,3,4

1 McGill University, Quantitative Life Sciences; 2 McGill University, Department of Bioengineering; 3 McGill University, Faculty of Dental Medicine and Oral Health Sciences; 4 McGill University, Department of Anatomy and Cell Biology

Over the course of human evolution, the lower limbs have become optimised for bipedal walking and running, in addition to supporting upright body posture. These functions, in turn, drive ontogenetic structural adaptation of cancellous bone, with trabeculae gradually becoming co-aligned in the direction of predominant forces. The resulting stress trajectories can be observed visually in 3D using microcomputed tomography, and even by an unaided eye on dissected specimens or 2D radiographs. These stress trajectories are intricate and heterogeneous in 3D, serving as a record of both passive and active bone loading. To infer the functional history from this structural record, quantitative analyses are required. One useful metric is trabecular anisotropy, which measures local co-alignment. However, traditional analyses using the Mean Intercept Length or Star Volume Distribution approaches are typically limited to reporting single scalar values over a few large cropped subvolumes, while omitting the orientation and broader anatomical context. To resolve these limitations, we compute trabecular anisotropy as a dense vector field. These vectors represent both the local strength and orientation of trabecular co-alignment at a high resolution across a volume. To facilitate interpretation and comparison of these vector fields, we have developed a new tool to visualise oriented data and summarise them into a handful of parameters using directional statistics. Using our open source VectoRose package, we can generate spherical histograms where local trabecular orientations are projected on the surface of a faceted sphere, revealing which orientations are most common. These patterns appear to reflect several architectural features, including stress trajectories due to passive compressive weightbearing loads, tensile loads, ligament insertion sites, and articulations with other bones. By examining these patterns, we attempt to estimate the habitual range and direction of movement in joints. These analyses open new possibilities to quantitatively investigate past lifestyles from trabecular architecture.

11:45

Modeling functional changes in feeding performance throughout life history

Naomi Loose 1; Shruti Kolli 2; Hugo Dutel 3; Anthony Herrel 4; Adam Hartstone-Rose 5; Edwin Dickinson 1

1 University of Calgary, Department of Anthropology and Archaeology; 2 University of Colorado Anschutz, School of Medicine; 3 University of Bristol,

School of Earth Sciences; 4 Museum National d'Histoire Naturelle, Paris; 5 North Carolina State University, Department of Biological Sciences

The mammalian masticatory apparatus undergoes many morphological changes throughout life. These changes – in the anatomy of the adductor musculature, the bony skull and mandible, and the dentition – are expected to affect many aspects of masticatory performance including key ecological parameters such as bite force and gape. However, the direct translation between morphotype and performance is poorly understood at both sides of the aging spectrum (i.e., ontogeny and senescence). To directly explore this relationship, we construct an ontogenetic sequence of four multibody dynamics models simulating masticatory performance from infancy to senescence in the gray mouse lemur – a common model for nonhuman primate aging. Maximum reconstructed bite forces increased from infancy (2.14 N) through juvenility (19.86 N) and peaked in adulthood (33.13 N), before declining slightly into senescence (29.83 N) – closely matching adult *in vivo* data, validating our models. Maximum gapes followed a similar pattern, reaching ~0.5 cm in infants, ~1.5 cm in juveniles, and ~2 cm in both adult and senescent models. The relative contributions of individual muscles remained broadly consistent throughout life. Finally, in our three oldest models, active tension was predominant for the first ~25° of jaw rotation, and was eclipsed by passive tension at ~45° for juveniles and 50-55° for adult/senescent models. Infant jaw adduction relied almost exclusively on active tension throughout, reflecting the long jaw adductor fibers (relative to head size) at this age. Together, these data demonstrate both the validity and exploratory power of *in silico* modeling approaches for understanding musculoskeletal aging and its functional correlates.

12:00

Exploring Adult Limb Proportion Variation in Relation to Childhood Subjective Social-Emotional Adversity*

Wiley, Adrianna; Michelle E. Cameron

1 University of Toronto

Childhood biocultural environments shape human bodies as trade-offs are made between various aspects of growth and development in response to competing survival and productive costs. Previous work has shown several social factors, such as institutionalization and socioeconomic status, impact growth when measured in growing children. Subjective social-emotional adversity is often a better predictor of temporally distant health outcomes than stressor exposure counts, suggesting there is something unique about subjective perceptions that may impact physiology. This study takes a biocultural approach within an evolutionary life history framework to explore: 1) subjective social-emotional adversity as a potential 'survival cost' competing with growth; and 2) whether growth disruptions associated with negative emotional environments in childhood remain detectable in adult bodies. Standard anthropometric protocols were used to measure 63 young adult (20-30 years) participants residing in the Greater Toronto Area. Participants were categorized into higher (n=36) or lower (n=27) stress groups based on a combination of survey responses, Likert scores in association with a timeline activity, and semi-structured interview analysis. Relationships between subjective childhood social-emotional adversity and limb proportions were then tested using ANCOVA. No statistically significant differences in limb segment lengths for a given sitting height were found. However, there was a moderate effect size (robust Cohen's $D = -0.5$) associated with the pattern of higher stress individuals having on average shorter thigh lengths for a given sitting height. We conclude that anthropometrics measured in adulthood may not fully reflect experiences of subjective childhood social-emotional adversity. Possible explanations include adolescent catch-up growth following physiological habituation to chronic stress. Future work should explore potential hormonal mechanisms.

THURSDAY • Non-Academic Contributions to Biological Anthropology

Chairs: Creighton Avery and Katherine Bishop

2:00

The Burial that Wasn't: Expertise and Adaptability in Ontario Excavations

Creighton Avery 1,2; Caitlin Simmions 1

1 Stantec Consulting Ltd.; 2 Wilfrid Laurier University

In the summer of 2023, Stantec Consulting Ltd. (Stantec) archaeologists were excavating at a site in Kitchener, Ontario (Location 3; AiHc-542). Preliminary excavations indicated that the site was representative of a Euro-Canadian homestead, dating between the 1830s and modern period, with the majority of material dating between 1830 and 1870. Historic and archival research corroborated the long-term occupation of the site area from the early 19th century, and included families living on the property. During the Stage 4 mitigation by excavation, 35 features and post moulds were identified, including root cellars, a well, middens, and other cultural deposits typical of a Euro-Canadian homestead. One large rectangular feature, Feature 72, was identified between the historic home and road and oriented east-west. Initial documentation of the feature's plan view characteristics revealed some bone material. Due to the elements consistent with typical Judeo-Christian burial practices, and presence of osteological elements, Stantec's osteoarchaeologist was sent to the site to help with excavation and provide on-site identification of remains to help guide the excavation process. Shortly after beginning excavation of the feature, it was clear the remains were not human, but various elements of a (or multiple) sheep. While not the outcome anticipated by the osteoarchaeologist or other archaeologists on site, this case study illustrates the importance of having technical expertise on-site, and the necessity of flexibility in excavations.

2:15

The last record: a multidisciplinary investigation of an early Holocene archaeological site in the Peace Region, Treaty Number 8 Territory B.C.

L. Elizabeth Doyle, PhD 1; Beth Hrychuk, MA 1; Aleesha Bakkelund, MSc 1

1 Landsong Heritage Consulting, Ltd

Cultural Resource Management (CRM) archaeology is frequently tasked with collecting the first, and often last, material record of cultural heritage sites identified during development. In a fast-paced, multi-stakeholder environment, fielding a multidisciplinary programme maximizes both the evidentiary basis for site management decisions and the permanent site record, and may yield unexpected findings that point the way for future inquiry. GkRf-37, an open-air site located within the Treaty Number 8 Territory in the Peace River region of Northeastern British Columbia (B.C.), exemplifies the benefits of such an approach. GkRf-37 was identified in 2023 and subsequently evaluated, then altered, in 2023-2025. With valued guidance from numerous local Indigenous Nations within both B.C. and Alberta, the B.C. Archaeology Branch, and development proponents, we launched a program encompassing palaeobotany, osteology, molecular analysis, soil micromorphology, lithic analysis, and chronometry to inform the care and protection of the site. Initial results point to a long-standing multi-use cultural place, with a variety of lithic toolkits, abundant use of selected raw materials, and hunting of large bovids in an evolving Holocene landscape. Notably, the oldest site component, a thermal feature dating to 10,550-10,993 cal BP, yielded numerous indeterminate, calcined bone fragments and one partially carbonized fragment with human-like features. Owing to taphonomic processes, hard tissues are rarely recovered in this region; however, Indigenous Ancestral remains have occasionally been identified, as at the early Holocene site of Tse'k'wa (Charlie Lake Cave) located approximately 58 km north of GkRf-37. The rich

material record of GkRf-37 reinforced the case for permanent protection of the earliest component and mitigation of the later occupations through development realignment. This paper will describe the initial results of this work and comment on the utility of a bio-anthropological perspective in the field and throughout the process of site investigation.

2:30

Meeting the need: The Casualty Identification Program and the recovery of skeletal human remains

Sarah Lockyer

1 Department of National Defence and Canadian Armed Forces

Over 27,000 Canadian service members have no known grave following the First and Second World Wars, and the conflict in Korea. The Canadian Armed Forces's Casualty Identification Program is mandated to identify Canada's missing war dead so they can be buried with their name, by their regiment, and in the presence of their family. The Casualty Identification Program's investigative process is reactive, therefore, we do not typically search or recover the human remains of Canadian war dead. Investigations begin when the human remains of a possible Canadian service member have been discovered and recovered. Since the inception of the Casualty Identification Program in 2007, four recovery operations have been organized and executed by the Program, all in exceptional circumstances. The most recent recovery occurred in July 2026, ten years after the previous recovery operation in April 2016 in Belgium. This paper will discuss the circumstances surrounding the July 2026 recovery including the reasons why this proposal was accepted and the internal Department of National Defence requirements for its execution, such as developing media and procurement strategies. It will also provide an overview of the diplomatic efforts and international partnerships required to organize a recovery on foreign soil, the jurisdictional and archaeological licensing requirements, as well as how this modifies the approach to the investigative process. As the manager of the Casualty Identification Program and its forensic anthropologist, many daily roles and responsibilities fall outside the technical subject matter expertise of biological anthropology.

2:45

Uncovering the Murderers' Graveyard: Biological Anthropology and the Old Don Jail Cemetery Project

Johanna Kelly 1

1 WSP Canada Inc.

Toronto's Old Don Jail opened in 1864 and operated for over 100 years, garnering a reputation for merciless treatment of inmates. During this period, at least 35 individuals convicted of capital crimes were executed at the jail, 15 of whom were ultimately buried beneath the jail's exercise yard between 1872 and 1930 in an area contemporary newspapers dubbed the "Murderers' Graveyard." Following the jail's closure, the property stagnated for years until it was purchased by Bridgepoint Health as part of its new campus. Prior to property redevelopment, Archaeological Master Plan research identified potential sites or features of interest, including possible burials associated with the former jail. As part of the Bridgepoint Hospital redevelopment project, Bridgepoint Health retained a Cultural Resource Management (CRM) team to locate, disinter, and rebury those individuals who had been hanged and interred at the jail. Through multidisciplinary collaboration, the team matched the 15 sets of skeletal remains with the identities of men that were hanged at the jail and subsequently buried in the east exercise yard. Using biological anthropological analytical techniques as well as exhaustive research and, in some cases, forensic methods, the majority of the 15 can be considered positive identifications. The Old Don Jail Project is one example of how biological anthropology training can be applied in CRM work, illustrating how biological anthropologists contribute not only to the

recovery and interpretation of past lives but also to informed decision-making, heritage stewardship, and successful project delivery in land use planning and development contexts.

3:00

Lost in another Church Fire: Attempting to relocate unmarked interments using ground penetrating radar and archival data at the 19th century Saint Richards Roman Catholic Cemetery, Louisbourg, Nova Scotia

Chris Burgess

1 New Brunswick Museum, Department of Humanities

In 1768, the British garrison stationed at the Fortress of Louisbourg was recalled. A smaller community of residents remained along the area known as the "North Shore" during the 18th and 19th centuries. Within this smaller community, several unmarked cemeteries were established, one of which was that of Saint Richards Roman Catholic Cemetery. The cemetery was established in 1847/48 and witnessed its last recorded burial in 1938. In the 1960's, a wave of land expropriation took place, resulting in the parish archives being relocated to a church in the nearby village of Main-A-Dieu. An event, known locally as "The Great Main-A-Dieu Fire", took place in 1976 and saw the destruction of 17 structures including that of the historic church. A funerary list, using archival data, was compiled between 1998 and 2001 and included the names of 137 individuals who were buried in the cemetery between 1909 and 1938, however, a plan of the cemetery was never found. As a preliminary technique to re-establish the true extent of the Saint Richards Cemetery boundaries, a geophysical survey was conducted using Ground-Penetrating Radar (GPR). This preliminary survey was approximately 43 m x 47 m and was used to confirm true spatial limitations and interment population within the cemetery proper. The results of which determined that the total number of burials thought to be located within the cemetery (137) was lower than the true number of burials identified through the use of GPR (162), and that the entirety of these interments were located within a smaller footprint than that of the modern interpretation of the cemetery perimeter. The results of this study emphasize that as research continues to move towards being non-invasive and non-destructive, the incorporation of various geophysical techniques, including that of GPR, are becoming more important within the field of bioarchaeological investigations.

3:15

Reclaimed by the Thames: Remembering and Preserving a 19th Century Cemetery

Katherine Bishop 1; Marya D'Alessio 1

1 TMHC Inc.

The Dolsen Cemetery is located atop a highly active floodplain, with reports of burials and grave markers being swept into Ontario's Thames River over the last century. After the discovery of remains actively eroding into the river in the early 2020s, the Municipality worked to establish permanent erosion control measures and safeguard any remaining interments. Our team at TMHC Inc. was brought in to establish the number and location of remaining burials, which may have been interred as early as the 1820s. As the project progressed, we were on site to mitigate the risks of disturbing any burials during erosion control, and, when burials were uncovered that were at risk of further degradation, our team safely recovered and documented all individuals for reinterment. Due to the nature of the site location, burial contexts, and unexpected volume of interments, there were complications at every stage of the project. In the end, through the collaborative efforts of ground penetrating radar, historic research, construction monitoring, salvage bioarchaeology, and reinterment planning with the Bereavement Authority of Ontario, our team was able to relocate, preserve, and document the cemetery and many of its remaining occupants. As a result of the erosion control measures, the community will now be

safeguarded in their final resting place without the risk of being reclaimed by the Thames.

THURSDAY • Human & Other-Than-Human Species Co-Evolution

Chairs: Aleksa Alaica and Courtney Hopper

4:00

Size Matters: Economic Pressures, Culling Decisions and Evolutionary Trends among Herding Societies in the Holocene of the Andes

Aleksa K. Alaica 1; Stephen Berquist 2; Luis Manuel González 1

1 The University of British Columbia, Department of Anthropology; 2 Pontificia Universidad Católica del Perú

Camelids occupy a foundational role within the past and present of Andean dietary strategies and economic practices. This paper investigates the dynamics involved in managing camelid herds in northern Peru during the 1st millennium CE. Co-evolutionary forces did not end with camelid domestication, rather complex socio-political networks of the North Coast of Peru during the Late Moche and Transitional phases of the Middle Horizon (650–1050 CE) shaped camelid herd structures through variable environmental, economic and power structures. Drawing upon zooarchaeological assemblages recovered from monumental and elite contexts at Huaca Colorada and Tecapa, we integrate osteometric assessments with stable isotope analysis to track patterns of camelid management, provisioning, and consumption. Our findings demonstrate that shifts in camelid exploitation correlate directly with agricultural intensification and expanding long-distance exchange networks during the latter half of the Middle Horizon. Crucially, we contend that beyond their presence as pack animals driving macroeconomic expansion, the deliberate selection of camelids based on size, age, and sex profiles fundamentally reconfigured dietary practices and socio economic and political negotiations. By prioritizing camelid morphometrics and demographic profiles alongside isotopic data, this study offers new insights into the nuanced multispecies co-evolutionary relationships and resource-sharing strategies that underpinned political economies and camelid size and morphology in the ancient Andes. These findings have important implications for evolutionary trends during the Holocene of Western South America.

4:15

Horse-Power: Biomolecular and Social Drivers of Human–Horse Co-Evolution in the Maloti-Drakensberg Region of southern Africa

Courtney Hopper 1,2; Peter Mitchell 3,4

1 University of Alberta, Department of Anthropology; 2 University of Cape Town, Department of Archaeology; 3 University of Oxford, School of Archaeology; 4 University of the Witwatersrand, Rock Art Research Institute

The introduction of horses to southern Africa in the 17th century initiated a profound human–animal co-evolutionary dynamic that radically reshaped local economic, social, and biocultural trajectories. While horses initially affirmed settler European identities, Indigenous populations, notably the Korana, Herero, AmaTola 'Bushmen' and Basotho, rapidly integrated horses into their social, ecological, ideological, and economic lifeways. Mounted hunting also altered transport dynamics and reshaped traditional food-sharing norms. Since individuals without horses could not as readily reciprocate meat, social structures shifted toward prestige-based differentiation. In Lesotho, where horses didn't arrive until the 1820s, they quickly transformed mobility, trade, and social differentiation. In fact, to this day, horses are so central to Basotho culture and identity that they are represented on stamps, coins, banknotes, and the national coat of arms. This paper

presents preliminary insights on how biomolecular archaeology and ethnohistory can be used in parallel to more fully evaluate the co-evolutionary impacts of this partnership, highlighting a striking cultural paradox. Culturally, eating horse meat was generally considered taboo, a tension preserved in the idiom *Ho ja pere* ('eat the horse' - to do the forbidden). Yet, biomolecular evidence reveals a different reality: palaeoproteomic analysis of potsherds from the site of Ha Makotoko detected horse connective tissue collagen and blood residues, confirming horse meat was indeed prepared and consumed. By contrasting symbolic cultural taboos with biomolecular dietary evidence, this paper explores how horses may have acted as active agents in shaping human social, environmental, and dietary trajectories.

4:30

Guardians of the night: interspecies nighttime vigilance in a human evolutionary context

Ming Fei Li 1; David Samson 2

1 Duke University, Department of Evolutionary Anthropology; 2 University of Toronto Mississauga, Department of Anthropology

Social cooperation and coordination are central features of human evolutionary history, enabling groups to effectively manage risk and allocate tasks in uncertain environments. One context in which such coordination is especially consequential is sleep, where individuals must balance the competing demands of rest and vigilance. Sleeping in groups likely enabled higher-quality sleep since variation in individuals' sleep-wake timing may enhance collective vigilance. Beyond humans, group vigilance can extend to cohabiting species like domestic dogs (*Canis familiaris*), which often serve guarding functions in communities facing environmental risks. Here, we tested whether the presence of free-roaming guard dogs improved human sleep by buffering against nighttime threats or worsened it through increased disturbances. We worked with an agropastoral community in South Africa's Eastern Cape, a high-risk region prone to stock theft and wildlife predation. We collected accelerometry data from 131 humans (herders and non-herders) totaling 5,791 person-nights and 41 human-dog dyads totaling 1,385 dyad-nights. Using Bayesian hierarchical models, we found that the presence of guard dogs was associated with reduced sleep efficiency, higher fragmentation, and longer wake after sleep onset—but only among herders. We also found that the proportion of dyadic nighttime awakening (when at least one member was awake) among herders and dogs was 26 minutes longer in dense villages compared to remote cattle posts; this is likely due to greater stimuli from humans and other animals living in closer proximity in villages. Our findings show that human-dog dyads differed in their nighttime activities depending on livelihood responsibilities and environmental context. Among herders, dogs were associated with increased sleep disturbances which enhanced herder vigilance, resulting in a trade-off between safe versus sound sleep—a key dynamic underlying human-canid mutualism and our species' shared co-evolutionary history.

4:45

Compromising the microbiome: How modern human stressors shape disease, disorder, and diversity

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Contemporary health-related research in human biology focuses on the microbiome's significant role in respiratory, gastrointestinal, and genitourinary mucosal membrane wellbeing. Mucosal membranes are integrated, the gut-lung axis, for example, helping to explain why digestive tract dynamics, including ultra-processed food (UPF) consumption, can impact respiratory mucosa and lung health. Critically, UPFs lacking in good quality, intact fiber weaken the gut microbiome's abilities to produce healthy metabolites like short-chain fatty acids, molecules which protect and maintain the gut mucosa, helping to prevent inflammation and "leaky gut." Short-

chain fatty acids produced by the gut microbiome also travel to sites like the lungs, encouraging anti-inflammatory effects for the respiratory mucosa. Under the influence of ultra-processed foods, these mucosal protections may be weakened, a deficiency of good quality fibre in the gut producing potential asthma risk in the lungs. Acknowledging these kinds of associations, this paper drills down deeper, exploring cellular dynamics and using narrative synthesis to ask "how" and "why" questions and consider how some of the most unique members of the microbiome are being compromised in modern human niches, casting heavy impacts on health. This paper argues that modern stressors are continuing to reshape critical evolutionary relationships between humans and the microbiome, driving alterations or adaptations that appear in the form of disease, disorder, or diversity and impacts as hypothetically broad as Alzheimer's disease, heart disease, cancer, and schizophrenia.

FRIDAY • Session 1 • Primatology 1

Chair: Iulia Bădescu

8:30

From Illness to Mortality: Understanding Infant Survival in Wild Chimpanzees*

Florence Landry 1; Iulia Bădescu 1

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Survival rates are lowest during infancy in both humans and nonhuman primates. However, for each infant who dies from a given cause of death, several others may survive the same adverse event. Similarly, surviving an adverse event, such as illness, injury, or maternal loss, does not imply an absence of morbidity, and individuals may experience varying levels of health burden and impairment. As such, we investigated factors influencing infant morbidity and likelihood of survival in wild infant chimpanzees (*Pan troglodytes schweinfurthii*) at Ngogo, Uganda. We used visible indicators of ill health recorded for 33 mother–infant pairs during four months of fieldwork in 2018 to model morbidity, and data from 72 infants born between 2006 and 2018 for survival analysis. Factors tested included infant age and sex, parity, maternal age and health, sibling and maternal kin presence, nursing and feeding duration, orphan status, and respiratory outbreak exposure. Infant visible indicators of ill health were strongly associated with maternal health (GLMM: $\beta = 1.590$, SE = 0.548, $z = 2.903$, $p = 0.004$) and parity, with infants of multiparous mothers having higher odds of being sick ($\beta = 1.782$, SE = 0.786, $z = 2.266$, $p = 0.023$). Orphaned infants had significantly higher mortality risk (univariate Cox PH: HR = 4.40, 95% CI = 1.18–16.42, $p = 0.027$). Although five of nine infant deaths occurred during an outbreak, exposure to at least one outbreak during infancy was not associated with increased mortality risk. However, infants first exposed to an epidemic at younger ages tended to have a higher hazard of death (HR = 0.94, 95% CI = 0.88–1.00, $p = 0.067$). Understanding factors shaping infant survival and early-life health is essential for determining how early-life conditions influence mothers' fitness, infants' later-life fitness, and ultimately, population growth.

8:45

Behavioural Responses of Neotropical Monkeys to Variation in Perceived Predation Risk*

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Nonhuman primates hold vital ecological roles across their distribution, including as prey species. Even in the absence of an immediate threat, the presence of predators in the environment influences prey behaviour. Variation in spatiotemporal factors across an animal's home range changes their perception of their own current level of risk. Previous studies report that primates respond to this perceived risk through antipredator behaviours like vigilance. However, the ways that social, environmental, and individual variables influence antipredator behaviours are still unclear. Furthermore, little data on predator-primate relationships is

available from the Neotropics, compared to African data. I conducted fieldwork from June–August 2026 at La Selva Biological Station, Costa Rica to investigate how mantled howler monkeys (*Alouatta palliata*) and Central American spider monkeys (*Ateles geoffroyi*) experience and respond to perceived risk. I hypothesized: 1. Group cohesion is an anti-predator strategy for these species, and 2. Human disturbance, predator presence, low visibility, and the presence of subadults in a group increase their perceived risk. I collected 80 hours of primate behavioural data using focal animal sampling. Predator occurrence data was gathered by deploying 18 camera traps over 971 trap nights. Local knowledge regarding coexistence with wildlife was gathered through 3 interviews and 11 weeks of deep hanging-out with researchers and staff on site. Statistical analyses will use generalized linear mixed models in R to examine rates of antipredator behaviour in relation to predator activity, distance to anthropogenic edges, individual characteristics, and species. Qualitative data will be analysed using reflexive thematic analysis. Predator–prey behaviours are fundamentally intertwined yet few studies integrate both predator and primate data. This research addresses this oversight, contributing to our understanding of primate responses to predation pressure. Information regarding the behavioural flexibility of animals within human–modified landscapes is critical for successful coexistence of humans, primates, and predators.

9:00

Do food Availability and Temperature influence Ranging Behavior in wild Endangered Blond Capuchin Monkeys (*Sapajus flavius*)?*

Italo Ferreira Pereira 1,2; Natsumi Hamada-Fearnside 2; Poliana G. A. S. Lins 2; Simone Peruzzo 2; Clayton E. J. Silva 2; Ana Paula de Brito-Araújo 2; Erick A. S. Silva 2; Sarah E. Turner 1; Renata G. Ferreira 2

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Restricted areas and climate change are growing threats to nonhuman primates, such as the Endangered blond capuchin monkey (*Sapajus flavius*). We examined how minimum temperature, rainfall, and arthropod availability influenced monthly space use in a group of approximately 90 individuals living in a 270-ha Atlantic Forest fragment in northeastern Brazil. Between 2014 and 2023, we collected 26,561 GPS locations across 43 months. We estimated monthly home range (HR95) and core area (HR50) using kernel density analysis, and total area use was captured with minimum convex polygons (MCP). We expected capuchins to minimize energy expenditure, as measured through travel distance during periods of low fruit and arthropod availability, and to avoid heat stress by contracting their range during periods of higher temperature. We found that while the monkeys occupied the entire fragment, core use was centralized in only 5–15% of the area. We found no significant effect of fruit availability on ranging behaviour; however, arthropod availability was a significant predictor of range size, showing the value of invertebrates in fragments with few resources. Contrary to our prediction, maximum temperature was correlated with range expansion. This finding suggests that the monkeys remain active during heat peaks, potentially using seasonally available resources. Considering home range size as a measure of habitat quality, our study points to arthropod consumption and thermal responses as being important measures in understanding the spatial ecology of capuchins in fragmented landscapes. These findings can inform conservation management and demonstrate the importance of considering biodiversity, and particularly arthropod abundance, for maintaining suitable habitat for these Endangered primates.

9:15

Coping with Stress in Captivity: Personality and Sex Differences in *Sapajus* spp.*

V. A. Macedo de Oliveira 1,2; I. M. S. Oliveira 1; K. Araújo 3; M. S. Ferreira 3; N. Ficher 3; M. G. S. Melo 3; R. G. Ferreira 1; S. Turner 2

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Capuchin monkeys (*Sapajus* spp.) are the second most common primates admitted to Brazilian rescue centers. In the wild, they live in multi-male, multi-female groups with a tolerant matrilineal social structure. Captivity is a major source of stress for animals, yet individuals may differ considerably in how they respond to social and environmental challenges, depending on their individual characteristics and personality. In this study, we investigated how stress levels are affected by social hierarchy, sex, and personality traits among capuchin monkeys kept at a rescue center in Cabedelo, Paraíba, Brazil. The animals were monitored throughout the implementation of locomotor enrichment, as well as feeding and handling rehabilitation protocols. We conducted observations daily between April to June 2024, using scan sampling, totaling 800 minutes of observation per enclosure. Data were collected by 4 observers, following an inter-observer reliability test. The sample consisted of 22 individuals (9 females and 13 males). Personality was defined using the Hominoid Personality Questionnaire. We investigated the hypothesis that social rank, sex, and individual personality profiles influence stress-related behaviours in captivity. Using generalized linear mixed models (GLMMs) with individual identity as a random factor, we found that low rank influenced males and females in statistically different ways (Beta = 1.44; $p = 0.025$; $R^2_m = 0.227$; $R^2_c = 0.258$), with females exhibiting much higher stress indicators than males when occupying low positions in the hierarchy. Furthermore, we also found a significant interaction between personality and hierarchy (Beta = 1.27; $p = 0.001$; $R^2_m = 0.240$; $R^2_c = 0.259$); within low-ranking individuals, high levels of assertiveness were associated with fewer stress-related behaviors. We conclude that stress in captive environments is modulated by the interplay between social rank, sex, and individual personality. Therefore, these three factors must be considered to guide management protocols aimed at ensuring captive primate well-being.

9:30

White-faced capuchin monkeys (*Cebus imitator*) vary activity budget but not spatial cohesion in the anthropogenic edges of a tropical rainforest

Laura M. Bolt 1,2; Jenna L. Owens 2,3; Maddy T. Grant 2,4,5; Amy L. Schreier 2,6

1 University of Toronto, Institute of Forestry and Conservation, John H. Daniels Faculty of Architecture, Landscape, and Design; 2 Maderas Rainforest Conservancy; 3 Delaware Valley University, Department of Wildlife Conservation; 4 Graduate Center of the City University of New York, Department of Anthropology; 5 New York Consortium in Evolutionary Primatology; 6 Regis University, Department of Biology

Anthropogenic deforestation in the Neotropics produces edge effects in remaining tropical forest fragments. Vegetation differences across forest edge and interior alter food and forest canopy availability for animals, which can change activity budgets and spatial cohesion among conspecifics across forest zones. While edge effects have been investigated in relation to non-human primates, research on the behavioral edge effects of edge-tolerant species is lacking. We investigated whether the white-faced capuchin monkey (*Cebus imitator*), a group-living, edge-tolerant primate species, modified behavior in the anthropogenic edges and interior of a fragmented tropical rainforest, La Suerte Biological Research Station (LSBRS) in Costa Rica. Due to differences in food

resource availability across edge and interior at LSBRS, with preferred fruit and insects in greater abundance in forest edge, we predicted that capuchins would travel more, rest and feed less, and maintain greater spatial cohesion with conspecifics in forest edges. We collected data on activity (travel, rest, feed) and spatial cohesion (distance to nearest conspecific; number of monkeys within 5m) of capuchins from 2017-2025 across 50m anthropogenic forest edge and interior regions of LSBRS, and found mixed support for our predictions. Capuchins travelled less, rested more, fed equal amounts, and showed no difference in spatial cohesion in forest edges compared to interior, potentially due to differences in vegetation structure across forest regions at LSBRS. Our results add to investigations of the complexities of behavioral variation in edge-tolerant primates.

9:45

Physically impaired and disabled Japanese macaques (*Macaca fuscata*) show no detectable deviations in temporal behavioural complexity indicative of potential fitness costs*

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Animals with physical impairments and disabilities are generally expected to face challenges to survival in the wild, yet many instances of these individuals surviving into adulthood have been documented across a range of species. Physically impaired animals most commonly modify existing behaviours to compensate for their impairments; however, these modifications may be subtle and difficult to detect through direct observation. It therefore remains challenging to quantify and understand the consequences of disability in animals. At the Awajishima Monkey Center, Japan, free-ranging Japanese macaques (*Macaca fuscata*) exhibit high incidences of congenital limb malformations ranging from malformed digits to missing limbs, allowing us to observe disability-associated behaviours. Fractal analyses suggest that optimal complexity ranges exist in the temporal organization of behaviour, with deviations from those ranges associated with individual and environmental challenges that may reflect fitness costs. We used 35-min focal observations of 10 disabled macaques and 10 nondisabled control macaques across two years, and applied detrended fluctuation analysis as an index of behavioural complexity. Across 339 observations, neither extensive ($p = 0.379$) nor mild disability ($p = 0.852$) was significantly associated with changes in behavioural complexity. This pattern remained when females and males were examined separately using models that accounted for sex-specific variables. Similarly, within a subset of 261 observations, behavioural complexity did not significantly differ between macaques with and without visible hernias ($p = 0.437$). These findings suggest that macaques find ways to cope with physical impairments and disabilities without detectable deviations from optimal ranges of behavioural complexity, indicating that associated fitness challenges may be limited, lessen as individuals adjust to their impairments over time, or may not be captured by our measure of behavioural complexity. Behavioural flexibility may therefore enable individuals to adjust to physical impairments and disabilities while navigating daily life.

10:00

Mother-Infant Conflict over Nursing in free-ranging Japanese Macaques (*Macaca fuscata*)

Yuto Nejishima 1,3; Masataka Ueno 2; Noriko Katsu 1; Sarah E. Turner 3; Kazunori Yamada 1

1 The University of Osaka, Human Sciences; 2 Kindai University, Faculty of Applied Sociology; 3 Concordia University

During the weaning period, in many nonhuman primate species, including Japanese monkeys (*Macaca fuscata*), a mother will often reject her infant's nursing attempts by physically blocking nipple access or reacting aggressively (e.g., biting). However, it remains under-investigated whether intense nursing attempts accompanied by vocalizations and severe maternal rejections provoke mutually antagonistic reactions in the short term. This study examined the immediate bidirectional effects of infant nursing attempts and maternal rejections, addressing the question: How does the intensity of nursing attempts and rejections impact short-term mother-infant interactions? We observed 23 pairs of one-year-old infants and their mothers from two free-ranging groups in Japan: the Jigokudani Monkey Park in Nagano (central Japan; 18 pairs, 167.8 hours, June–September 2022) and the Kanbanotaki Natural Park in Okayama (western Japan; Katsuyama group, 5 pairs, 50.8 hours, June–September 2024). Using Generalized Linear Mixed Models (GLMMs), we analyzed a total of 642 nursing attempts and subsequent maternal responses. Infant vocalizations during nursing attempts significantly decreased the likelihood of maternal rejection (Estimates = -2.62 to -0.74, 95% CIs did not cross zero). Furthermore, infants were less likely to attempt nursing again following a severe maternal rejection compared to less severe rejections ($z_s = 1.91$ -2.08, $p_s = .038$ -.057). However, when infants attempted to nurse again after a severe rejection, these subsequent attempts were more frequently accompanied by vocalizations than those following less severe rejections ($z_s = -2.44$ to -2.10, $p_s = .015$ -.036). These findings suggest that while infants generally cease attempts following severe maternal rejections, their repeated attempts involve intensified vocal signaling, highlighting the complex, context-dependent dynamics of mother-infant interactions during weaning conflicts.

FRIDAY • Session 2 • Ethics and Qualitative perspectives on Bioanthropology

Chair: Michelle Cameron

8:30

Who's your mummy? Mapping the origins and expression of the mummy bundle (fardo) on the Central Coast of Peru*

Sarah J. Bidinosti 1,2; Andrew J. Nelson 1,2

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The seated flexed burial position, which characterizes the structure of the "fardo", or funerary bundle, appeared in the early Middle Horizon on the Central Coast of Peru and it continued until the time of the Spanish Conquest. Prior to this, the Lima culture buried their dead in extended positions during the Early Intermediate Period. This shift in mortuary practices has generally been attributed to the influence of the Wari Empire from the Southern Highlands of Peru, which reached the Central Coast at the beginning of the Middle Horizon. The Wari are known to have venerated their ancestors through the preparation of fardos, and the curation of the fardos in special structures called chulpas, so the fardos could be revisited for ritual ceremonies. However, detailed analysis of available data suggests that the seated flexed position appeared first on the South Coast of Peru in the Paracas Culture in the Early Horizon, and continued in the South Coast Nasca culture in the Early Intermediate Period. Furthermore, the Central Coast fardos were often buried in locations that could not be revisited. In this paper,

we explore the possibility that the seated, flexed fardo was a South Coast innovation adopted by the cultures of the Central Coast rather than something imposed on them by a foreign empire. This suggestion has important implications for the socio-political development of the Central Coast of Peru. This work confronts misconceptions and colonial biases about these ancient cultures and societies. These patterns can further provide context to unproven mummies in museum collections. Ancestral mummies remain a part of the living identity of Peruvian culture, and it is imperative to reconstruct the most culturally accurate accounts of the past.

8:45

Sex/Gender as Process in the Central European Neolithic*

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Concepts of sex and gender, though separate in some research contexts, are also often entwined, and research on past populations should reflect this complexity. The term "sex/gender" reflects these known interactions between sex and gender. Recent theoretical critiques of sex and gender concepts in the Central European Neolithic Period (9000-4000 BP) have made compelling cases for critical engagement with these concepts in biological anthropology. Under these critiques, the shared impacts of "natural" and "cultural" influences blur together. From this, a phenomenological approach, which highlights the relationships between things rather than the states themselves, emerges. Yet the inherently lived experience of sex and gender, and the question of how these ideas existed in the past, makes a connection between theory and practice challenging. However, if we approach sex/gender as a complex process, and do not presume discrete categories, a potential solution emerges. The sex/gender behavioural diversity in the European Neolithic, followed by the seeming solidification of binary sex/gender in the subsequent European Bronze Age, makes the former an ideal study site for sex/gender as process. In this presentation, I use an embodiment approach informed by gender theory and relationality to argue that, in addition to separate sex and gender concepts, the contested process of becoming a sexed/gendered individual is also important for understanding lived experience in the Central European Neolithic. Secondly, I make recommendations for practical applications in biological anthropology research. These research design and data analysis recommendations accommodate the relationships between sex and gender, and the processes through which they are embodied. Future research should seek to incorporate sex/gender as process in other spatiotemporal contexts. Such an approach will foster a more expansive perspective on human social behaviour.

9:00

Hauntology and liminality for ethical consideration of human skeletal remains in biological anthropology

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Acquisition practices for human skeletal remains by Canadian universities have different ethical standards today than they did in the past when many of the skeletal collections used in teaching were created. Many of the human skeletal remains which have been purchased for use in teaching have undergone both a physical and metaphysical transformation as part of their journey to the classroom with their identity and origine lost in the process. This has brought the human skeletal remains to a liminal space outside of usual and expected ritual death care. The overseas purchase of human skeletal remains has benefited from colonial systems of oppression which have harmed both past and present people. The past of these collections now unsettles biological anthropology in Canada and haunts those who encounter its history. Hauntology is

a theoretical framework that explores the discomfort of an unsettled past through haunting as an absence/presence first described by Jacques Derrida in 1993. Ghosts in this framework are spectral presences of the past in the present and to be haunted is for these ghosts to cause a disruption. A belief in ghosts is not a prerequisite to experience the unsettling event of a haunting or find utility in hauntology. The perceived or anticipated temporal disruption of ghosts brings the past into the present with their haunting representing the past reaching out to demand action from the present. This engagement has the potential to transform the way the past is understood in the present as not something settled but something that still requires work. Living people, particularly those who work and teaching with human skeletal remains, have relationships to dead people and their past. Hauntology provides a framework which reminds us that the form of these relationships matters.

9:15

Science as stories: The role of narratives in bioarchaeology

Michelle Cameron 1

1 University of Toronto, Department of Anthropology

Scientists are storytellers. We craft stories across our work outputs, from how we present research results to how we deliver lectures. As outlined by Landau (1991), narratives and themes pervasive across Western European folklore and mythology have likely shaped the questions we ask in human evolutionary research and our interpretations: narratives of heroes, struggles, and transcendence. These narratives help us communicate our work to various publics; however, they may also reinforce problematic and marginalizing perceptions of peoples past and present. They also may not adequately reflect the variability or processes that characterize human evolution and introduce biases. The impacts of folk and mythological narratives in palaeoanthropology and archaeology have been discussed. Here, I argue that Western European narratives and themes influence bioarchaeology and continue to shape what topics are studied, how they are interpreted, and how we disseminate study results. These narratives may take agency away from those we study, with deviations from these themes problematized or interpreted as exceptions. I will outline how the influence of folklore and mythology parallels issues with overly adaptationist paradigms, misconceptions of time, and may also affect who holds power in our field. I will focus on examples related to hunting and gathering or foraging populations and discuss how interpretations of some skeletal traits, specifically those associated with physical activities and behaviours, exemplify this history. I suggest ways for researchers to re-examine how we design studies and communicate with an awareness of how narratives and literary devices shape the stories we tell.

9:30

Classifying the Poor: Biopolitics, Gender, and Morality in the St. Lawrence County Poorhouse*

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1 University of Toronto, Department of Anthropology; 2 St. Lawrence University, Department of Anthropology

This mixed-methods analysis examines 2579 admission records from the St. Lawrence County Poorhouse (1875-1920), a historic social welfare institution that was located in New York State. These records include demographic information such as sex, socially ascribed race, nationality, and marital status, as well as social judgments of social habits, cause(s) of dependence, judged ability for labour, and predicted destiny of those admitted. Through the lens of Foucault's concept of biopolitics, this study explores how institutional record keeping reflected and reinforced moral judgements about poverty and dependency. Clear demographic trends emerged such as women more frequently being admitted between the ages of 18-30, while men were typically over the age of 30. Designations of individuals as being "Capable of Labour" were generally low, especially for men (24.0% vs 37.9% of women).

Men were more often listed as "intemperate" (38.9% vs 11.3% of women), while women were significantly ($p < 0.05$) more likely to be described in moral terms (5.5% vs 0.7%), reflecting stricter social expectations. Observations from the administrators of the poorhouse upon admission of an individual were also analyzed. Qualitative coding was used to show how categories like "intemperate", "immoral", and "dependent" functioned as tools of institutional logic. Assessments of "Probable Destiny" were shown to reflect biopolitical assumptions of the value of individuals based on their perceived potential productivity. This work demonstrates the value of mixed methods research to reconstruct the lived experiences of institutionalization, highlighting the gendered and biopolitical expectations placed upon individuals in need.

9:45

"It's something everybody should get worried about": Adolescents and the Cost-of-Living Crisis*

Sarah Oresnik 1

1 McMaster University, Department of Anthropology

Adolescence is a period of physiological and social change which is in part characterized by expanding agency. Currently, adolescents globally are experiencing a cost-of-living crisis. The cost-of-living crisis is characterized by a rise in costs of essential goods including food, housing, and energy while income does not match the pace of inflation or the costs of these goods. While adult perspectives of the cost-of-living crisis are often examined, as they control household finances, the impacts of this crisis on adolescents should also be considered. Examining the agency of adolescents from a biocultural perspective illustrates how the cost-of-living crisis heightens sociocultural and economic constraints, and environmental barriers, like food access. This accentuates the gulf between adolescent food choices and needs, and the agency to act on these choices. In Southampton, UK, in 2023, I interviewed 87 adolescents in one-on-one interviews, small group interviews, and photovoice sessions. Participants also completed a survey to collect sociodemographic information, which included a food security questionnaire adapted for adolescents. A total of 85% of participants were experiencing household food insecurity at the time of the study, with 57% residing in areas of the city characterized by higher levels of deprivation. In this presentation, I will discuss the multiple ways that adolescents in this study navigated the cost-of-living crisis. The cost-of-living crisis provoked anxieties as well as frustrations regarding food access; however, their experiences led to adjustments and coping strategies to manage food insecurity including reducing serving sizes, buying cheaper alternatives, and utilizing school meal programs alongside food pantries or banks. These experiences during adolescence highlight how food access and agency are further constrained at a time when nutritional demands are high, and adolescents are learning new social roles and relations.

10:00

Frameworks for Ethically and Responsibly Using Machine Learning Models in Biological Anthropology*

Faisal, Eman

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The use of artificial intelligence (AI) and machine learning (ML) models in biological anthropology has increased over the past half decade; however, there is a lack of a standardized protocol on how to curate, use, assess, and ethically evaluate these models. This presentation will introduce PUMAA (A Protocol for Utilizing Machine Learning in Forensic Anthropological Analyses), a framework consisting of a flowchart and a checklist that practitioners can follow when creating, using, or assessing ML models. This presentation will also introduce a framework on how to ethically evaluate these models, from data collection to model deployment. In addition, the various strengths and limitations of AI/ML models will be presented.

to equip researchers with the necessary tools needed to make informed decisions regarding when and how to use these models. This presentation serves as an initial protocol for the use of machine learning and artificial intelligence in biological anthropology. Anthropological studies involving machine learning and artificial intelligence were analysed to inform the development of these protocols. These protocols equip researchers with a structured approach for identifying factors that must be assessed when evaluating an ML model's performance. They also provide guidelines on how to report and self-evaluate the quality of these models, fostering a rigorous standardization procedure for AI/ML applications. Furthermore, these protocols assist with the recognition of ethical pitfalls and biases in the development and implementation of AI/ML models. Ultimately, these two frameworks equip researchers with guidelines for both the standardization and ethical use of machine learning in biological anthropology.

FRIDAY • Session 1 • Primatology 2

Chair: Iulia Bădescu

10:45

Social hierarchies and the fluctuating energetic needs of the female mammal

Kaia Tombak 1; Paul Hooper 2,3; Julie Teichroeb 1

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The way in which dominance hierarchies structure animal societies has been a research focus for over a century. Egalitarian societies, in contrast, have not been well-studied in animals. Using clues from the few studies on egalitarianism in animals and from the more numerous anthropological studies on egalitarianism in humans, we built a model to explore the forces that promote an even distribution of social status in animal groups. One of the key individual traits affecting dominance in animal models is resource holding potential (sometimes simplified to measures such as strength or relative body size). The other key parameter is motivation to compete. Mammals are interesting in this regard because of the extended phase of heightened need for resources females experience during pregnancy and lactation (the latter phase being the defining feature of mammals), which should cause fluctuating motivation in resource contests. Our model indicates that this fluctuation should have a destabilizing effect on social hierarchies, and the greater the fluctuation in need, the greater the destabilization. This suggests that mammals may have greater potential for egalitarian social dynamics than other animals.

11:00

Mean reversion over time to the optimal group size in a colobus monkey

Julie A. Teichroeb 1; Edward Mujuzi 2; Samantha M. Stead 1,3

1 University of Toronto Scarborough, Department of Anthropology; 2 Rwenzori Colobus Project, Nabugabo, Uganda; 3 University of Manitoba, Department of Pediatrics and Child Health

The evolution of group living is a topic of enduring interest. While grouping has multiple benefits for individuals, such as decreased predation risk or an increased ability to find and defend food, it also leads to costs like within-group food competition and disease risk. Theorists have long argued that the balance of these costs and benefits should lead to a species-specific optimal group size for each set of environmental conditions where fitness is maximized, but this has proven difficult to test in the wild. Researchers typically follow too few groups of large, charismatic mammals where it is unethical to experiment on group size. In addition, it has been theorized that group sizes in the wild are likely to be greater than optimal. No study has yet shown that group sizes within an animal

population gravitate repeatedly to an optima over time. Here we test this hypothesis on a population of Rwenzori Angolan colobus monkeys (*Colobus angolensis ruwenzorii*) in Uganda that live in a multilevel society with core units that are socially stable and spatially distinct. Using three independent measures on eight years of data we show that core units show significant reversion over time back to a population-level attractor at a unit size of 10.02-10.50. We then assess whether there is support for better infant survival within this size range and find that infant survival peaks at the hazard minimizing size of 10.23-10.65. We thus provide the first robust support for optimal group size theory in a wild animal population.

11:15

Male bond strength is predicted by core unit composition in a primate multilevel society*

Karyn A. Anderson 1; Frances V. Adams 1; Julie A. Teichroeb 1

1 University of Toronto Scarborough, Department of Anthropology

Despite expectations of intense competition among male primates, males in several species develop close social bonds. Primate multilevel societies, in particular, are characterized by cooperative male relationships where males maintain strong social bonds and exhibit tolerance toward one another. Rwenzori Angolan colobus are one such species where males in a multilevel society form close relationships with other males, but the mechanism of this bonding is unknown. Frequent same-sex sexual behaviour between adult males in this subspecies may contribute to male bond strength. Alternatively, male bond strength may be a byproduct of core unit composition. We investigated whether same-sex sexual behaviour or core unit composition predicted male dyadic bond strength in a primate multilevel society. Data were collected from wild, individually identified Rwenzori Angolan colobus near Lake Nabugabo, Uganda. Dyadic sociality indices (DSI) were used as a measure of social bond strength and were calculated from grooming and proximity data taken during scan samples (N=2,357). Same-sex sexual behaviour presence or absence within a dyad were collected from a combination of focal, scan, and ad-libitum data. 21.6% (19/88) of male dyads in our study population engaged in same-sex sexual behaviour. Dyads who engaged in same-sex sexual behaviour did not have significantly greater DSI than dyads who did not, and same-sex sexual behaviour was not a significant predictor of dyadic bond strength. Instead, bond strength was predicted by group composition, with a greater number of adult and subadult females and fewer adult and subadult males in the core unit associated with stronger male-male bonds. Recent work in this subspecies has found that males form long-term bonds over multiple parallel transfers and females preferentially disperse into multi-male core units as opposed to one-male core units. We thus suggest that females prefer to disperse into core units with tightly bonded males.

11:30

Developmental and sex differences in sexual behaviour among wild immature chimpanzees*

Ware, Elizabeth; Iulia Bădescu

1 Université de Montréal

Although sexual behavior and socio-sexual interactions in adult primates have been widely studied, their expression during infancy and juvenility remains poorly documented. Yet these behaviours in immature individuals may offer insight into development, social interaction, and the early emergence of sex differences. We examined patterns of sexual behaviour in wild immature eastern chimpanzees (*Pan troglodytes schweinfurthii*) at Ngogo, Kibale National Park, Uganda. We analyzed 1,255 focal observation hours from 73 immatures, represented across 102 individual-age records spanning 0 to 7 years old. We recorded 83 bouts of sexual behaviours given or received, including anogenital inspection, rump presentation, mounting with and without thrusting, genital rubbing, and related interactions. Male immatures showed significantly higher hourly rates than females (Generalized Estimating

Equations, GEE: $B = 0.106$, $SE = 0.045$, $p = 0.020$). Rates also tended to increase with age ($B = 0.044$, $SE = 0.024$, $p = 0.068$): individuals under 1 year rarely showed these behaviours, whereas the oldest immatures showed them most often. Maternal parity was not a significant predictor ($p = 0.195$). These findings suggest that sexual behaviour in immature chimpanzees is structured by development and differentiated by sex, even before sexual maturity. Sexual behaviour, while infrequent, seems to form part of chimpanzee behavioural ontogeny and may help illuminate the early emergence of sex-typed social repertoires in primates.

11:45

Formation and Maintenance of Wild Chimpanzee Consortships*

Alex Orille 1; Rebecca Stumpf 1,2

1 University of Illinois Urbana-Champaign, Department of Anthropology; 2 Kanyanchu River Research Project

Chimpanzee consortships are temporary male-female associations involving spatial separation and sexual exclusivity, yet the processes underlying their formation and maintenance remain unclear. Across long-term behavioral datasets from Tai National Park and Kibale National Park, we identified 12 consortships, all observed or inferred in the Tai South community. Consortships were rare, accounting for 27 of 890 South-community copulations, and their copulation rate was not elevated relative to non-consort male-available dyadic exposure. Formation evidence was available for seven events: five were male-led, two were ambiguous or jointly/female-facilitated, and none was unambiguously female-initiated. Consortships were not concentrated during the periovulatory period and did not involve female-preferred males more often than expected. Within consortships, female noncooperation/nonresponse co-occurred with male spatial/proximity maintenance, sexual solicitation/pressure, and broad intimidation, with temporal ordering varying across episodes. Prior affiliative social history did not predict consortship occurrence, although male-to-female intimidation was positively associated with consortship occurrence in a sensitivity model. These results support consortships as discrete, temporary, facultative restrictive-mating states shaped by separable formation, reproductive-context, maintenance, and social-history processes. Funding was provided by Max Planck Institute

12:00

Investigating Accumulative Stone Throwing as a Multimodal Male Display in Western Chimpanzees (*Pan troglodytes verus*)*

Taylor Tippet 1; Robyn Nakano 1; Ammie K. Kalan 1

1 GAB Lab, Department of Anthropology, University of Victoria

Accumulative stone throwing (AST) is a rare behaviour observed exclusively in select communities of western chimpanzees (*Pan troglodytes verus*) in West Africa. During AST events individuals, usually male, hurl stones at specific trees, producing loud resonant sounds, and creating stone accumulations. This stone tool-use behaviour occurs within a communicative, non-foraging context; therefore, proposed hypotheses include male displays, or group coordination. This study investigates whether AST functions as a multimodal male display in an unhabituated chimpanzee community in Boé, Guinea-Bissau. Eighteen remote camera traps were placed at known AST sites, to capture AST behaviours, identify individuals and record AST context vocalizations. Five autonomous recording units (ARUs) were installed to obtain vocalizations in non-AST contexts. Combined with camera trap data collected in 2017 by Dr. Ammie Kalan and colleagues, the dataset comprises 57 AST events, and approximately 1,700 hours of acoustic recordings. Behavioural coding has been completed for the video set using BORIS and individual identification is in progress. Ongoing analyses using ImageJ and Praat will quantify relative body and stone size and compare pant-hoot variation between AST and non-AST contexts. These data will be further analyzed to evaluate

whether AST is performed predominantly by adult males, whether it co-occurs with high arousal display behaviours, whether body size predicts stone size selection, and whether pant-hoots produced during AST exhibit acoustic features consistent with intimidation signalling. This research represents an investigation into the function of AST and will contribute to understanding the evolution of multimodal signalling, communicative tool-use and group coordination in primates.

12:15

L'influence de l'allo-parentalité sur le développement nutritionnel des colobes de Geoffroy*

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1 Université de Montréal, Département d'anthropologie

Chez certaines espèces sociales, l'allo-parentalité consiste à partager les soins entre la mère et d'autres membres du groupe. Lorsqu'un allo-parent s'occupe du nourrisson, la mère peut se reposer ou s'alimenter plus efficacement. Ces périodes peuvent aussi espacer les épisodes d'allaitement en limitant l'accès au mamelon, réduisant l'effort de lactation de la mère. Nous avons évalué si des comportements d'allo-parentalité (ex. : tenir, porter, toiletter, jouer) participaient à la transition du lait maternel vers la nourriture solide chez les colobes de Geoffroy (*Colobus vellerosus*). En 2010 et 2025, nous avons totalisé 359 heures d'observation focale auprès de 21 nourrissons non sevrés répartis dans sept groupes au Boabeng-Fiema Monkey Sanctuary, au Ghana. Au moyen d'Équations d'Estimation Généralisées, nous avons testé les associations entre le taux (fréquence par heure d'observation) de contacts allo-parentaux, le taux d'allaitement, le taux de consommation indépendante de nourriture solide et les caractéristiques du nourrisson, de la mère et du groupe. Aucune association significative n'a été trouvée entre l'allo-parentalité et le sexe du nourrisson ($p = 0.174$), la classe d'âge de la mère ($p = 0.945$) ou la stabilité de la dominance des mâles au sein du groupe ($p = 0.324$). L'allo-parentalité était toutefois plus fréquente dans les petits groupes ($p < 0.001$), ce qui pourrait refléter des relations sociales plus étroites ou davantage d'individus enclins à fournir des soins dans certains petits groupes. Bien que l'allo-parentalité ne soit pas associée à la consommation indépendante de nourriture solide ($p = 0.110$), à âge égal, les nourrissons en recevant davantage présentaient un taux d'allaitement plus faible ($p < 0.001$). Ces résultats suggèrent que l'allo-parentalité pourrait réduire l'effort de lactation des mères et favoriser une transition plus rapide de leurs nourrissons vers le sevrage, leur permettant potentiellement de s'investir plus tôt dans un autre événement reproductif.

12:30

Churchill's bestiary: An ethnoprimateological examination on the origins of the 'modern' Gibraltar macaques*

Sebastien Marto Granata 1; Lianne Tripp 1

1 Trent University, Department of Anthropology

The origins and early history of the Gibraltar macaques are murky. Exactly how and when they arrived on the Rock is not known. Researchers believe they were established on the Rock as late as the British period beginning in 1704 or as early as the 1400s. What is known is that the interaction and dependency on humans, primarily the British military, was necessary for the survival of the monkeys on the Rock. This presentation traces the origins of the 'modern' macaque population established during the Second World War. It aims to answer the following questions: From a demographic standpoint, what happened to the population during the war? What was the impetus for maintaining a population on the Rock? Who was involved with ensuring that a population was maintained on the Rock? Using archival records, the population size and individual monkeys were documented during the Second World War. Preliminary results indicate the population fell as low as 8 individuals by 1943, urging Prime Minister Winston Churchill to

increase population size to exactly 24 individuals. Seemingly, his motivation for reestablishing the population was grounded in the belief that 'Britain would fall' if the population dwindled, which was based on the superstition surrounding the ravens of the Tower of London. Not only were these beliefs embedded within Britain's history of animal symbolism and sovereignty, Churchill himself was undoubtedly superstitious, as shown through his bestiary: a collection of descriptions along with moral and religious lessons about animals. This presentation highlights how superstitions can play a major role in animal and human relations and animal conservancy, especially for a population that should not otherwise exist. Future research will trace the reproductive success of the 'modern' population established during the Second World War to gain a better understanding of the legacy of 'Churchill's monkeys.'

FRIDAY • Session 2 • From Lab to Living Room: Knowledge Mobilization and the Future of Biological Anthropology

Chairs: Maris Schneider and Jess Hider

10:45

Social Safety Schemas Classify Resilience among Jordanian Adolescents

Glass, Delaney; Eric Shattuck, Julia Porco, Nishan Mudalige, Risana Chowdury, Emery Jin, George Slavich

1 Department of Anthropology, Florida State University, Tallahassee, FL, USA; 2 Department of Mathematical and Computational Sciences, University of Toronto –Mississauga, Toronto, ON, CA; 3 Department of Anthropology, University of South Florida, Tampa, FL, USA; 4 Department of Psychiatry and Human Behavior, University of California, Irvine, CA, USA

Within the Social Safety Theory framework, social safety schemas refer to perceptions about safety across multiple domains that can affect health. Such schemas have not been studied outside of the Global North or in association with resilience, distress, or self-rated health. To address this gap, we explored associations between social safety schemas and resilience, distress, and self-rated health among adolescents living in Jordan. Data came from the 2018 cross-sectional wave of the Gender and Adolescence: Global Evidence study (n=4101 adolescents 10-17 years old). Four social safety schemas were assessed via factor analysis. Regression models assessed relationships between safety schemas gender, age, location, and resilience, psychological distress, and self-rated health. In a multivariate regression model, social self ($\beta = 5.183$, 95%CI: 4.449-5.917), social world ($\beta = 3.062$, 95%CI: 2.472-3.652), and social safety ($\beta = 0.662$, 95%CI: 0.220-1.103) schemas were each associated with greater resilience. Social self ($\beta = -1.376$, 95%CI: -1.885, -0.867), social world ($\beta = -0.813$, 95%CI: -1.218, -0.407), and social safety ($\beta = -0.629$, 95%CI: -0.935, -0.323) predicted reduced distress scores. Social threat predicted greater distress ($\beta = 2.361$, 95%CI: 2.086, 2.635). In terms of health, social self and social world followed by social safety and threat, emerged as the strongest predictors in an ordinal random forest model. Approximately 22% and 16.5 % of variability in resilience and distress scores were explained by their respective models, and self-rated health had a predictive accuracy of 92.88%. Our findings advance evidence that social safety is important for adolescent physical and mental health.

11:00

Responding to Generative AI Through Assessment Design: Lessons from the Biological Anthropology Classroom

Karyn Olsen 1,2

1 The University of Western Ontario; 2 Humber College Institute of Technology and Advanced Learning

The rapid integration of Generative AI (Gen AI) into higher education urges renewed questions about how instructors meaningfully assess student learning. This is true across contexts but particularly so in asynchronous environments where traditional forms of evaluation are highly vulnerable to AI-assisted shortcutting. This presentation presents reflective insights from one Anthropology instructor reimagining and trialing modified assessment practices in response to the rise of AI-enabled student work. Drawing on experience teaching first- and second-year Biological Anthropology courses in fully asynchronous formats since 2017, this presentation reflects on how assessment practices were disrupted by the rapid rise of Gen AI tools in 2022. Trusted assignments, including reflective writing, research essays, and take-home exams, quickly became tasks that Generative AI tools could complete, sometimes poorly and sometimes convincingly well. Recent literature suggests that Anthropology instructors across the four fields should consider how GenAI can support classroom learning without replacing students' own thinking and effort. This presentation examines iterative efforts to redesign assessment across several asynchronous courses over the past four years, with a focus on making learning processes more visible. Strategies explored include leveraging Gen AI-outputs, embedding structured learning arcs, requiring citations exclusively from course materials, incorporating recorded student presentations and podcast-style submissions and introducing proctored exams. The reflection also considers the ongoing tension between implementing assessment safeguards and maintaining a commitment to Universal Design for Learning, flexibility, and student well-being, particularly when some measures risk increasing anxiety or reducing accessibility. The presentation will highlight some successes, ongoing challenges, and invite all anthropology educators to consider how assessment design can evolve toward cultivating deeper learning in a post-AI era.

11:15

One Size Does Not Fit All: Accessibility in Biological Anthropology

Jess Hider 1,2; Amanda Cooke 3

1 McMaster University, Teaching and Learning Services, DeGroote School of Business; 2 University of Toronto Mississauga, Anthropology; 3 McMaster University, Department of Anthropology

In 2023, 11% of McMaster University students were registered with Student Accessibility Services, reflecting a broader increase in students seeking formal accommodations. As the number of university students accessing formal accommodations continues to increase, we examine how accessibility can be incorporated into biological anthropology education and professional practice, while considering the limitations of Universal Design for Learning (UDL). We draw on two complementary perspectives; 1) the application of UDL principles in teaching and course development and, 2) lived experience navigating accessibility as a student and professional with colour-vision impairment. Our experiences demonstrate that intentional design can reduce barriers to participation, but that accessibility is neither static nor universal. Approaches intended to improve accessibility may not address all accessibility needs, and barriers may remain invisible to educators and colleagues. These challenges extend beyond the classroom to professional and research settings, where the communication and presentation of biological anthropology are similarly shaped by design choices. Accessibility should be understood as an ongoing process of identifying potential barriers and making deliberate design choices, rather than as a fixed standard that can accommodate everyone

equally. As biological anthropologists, we have a responsibility to consider not only who is represented within our discipline, but who can meaningfully participate in its classrooms, research, and professional spaces. Universal design cannot anticipate every individual's needs, and practical constraints may limit the accessibility of particular environments or approaches. Continued reflection on accessibility, informed by both educators and people with lived experience of disability, can help identify barriers that might otherwise remain unrecognized.

11:30

From the Classroom to the Community: A Graduate Student's Guide to Biological Anthropology Outreach

Dima Kassem 1; Maris Schneider 1,2; Maddie Hertz 1,2; Hanne Andersen 1; Chloe Vicente-Sarmiento 1; Rashin Mosallai 1; Meagan Hardy 1

1 Western University, Department of Anthropology; 2 Western University, Collaborative Specialization in Musculoskeletal Health Research, Bone and Joint Institute

Western Anthropology Outreach (WAO) is a graduate- and undergraduate-student-led initiative dedicated to increasing public access to anthropological knowledge beyond the university classroom. WAO develops educational resources and interactive learning experiences that introduce members of the public to biological anthropology, archaeology, and sociocultural and linguistic anthropology. This presentation examines how student-led outreach can serve as a form of knowledge mobilization, creating opportunities for experiential learning and public engagement with anthropological research and methods. I draw on WAO's Anthropology Day: The Bone Zone, an initiative developed in partnership with the London Children's Museum. The event invited children and families to engage with anthropological methods through a series of interactive stations designed to demonstrate how bones, skeletons, and other material evidence can be used to investigate humans, animals, behaviour, and the past. Activities included a forensic anthropology station where children learned to identify human skeletal elements and complete a simplified skeletal inventory; a primatology station where participants examined primate crania, explored variation in locomotion and behaviour among primates, and constructed primate taxonomic groupings; a zooarchaeology station focused on the identification of animal skulls; and an ancient Egypt station that introduced children to aspects of ancient Egypt culture through activities involving hieroglyphs and other education materials. The Bone Zone demonstrates how anthropological concepts and lessons can be translated into accessible, interactive learning experiences that encourage public engagement with anthropology. Drawing on the development and implementation of this initiative, and how it was informed by our other events, I consider both the opportunities and challenges associated with communicating biological anthropology to public audiences, as well as the educational value of experiential and community-based learning. I conclude by outlining practical strategies for graduate students seeking to develop sustainable outreach and knowledge mobilization initiatives within their institutions and communities.

11:45

Who Gets to Be a Scientist? Biological Anthropology Outreach in Collaboration with the Canadian Association for Girls in Science

Maris Schneider 1,2; Madelyn Hertz 1,2; Dima Kassem 1

1 Western University, Department of Anthropology; 2 Western University, Bone and Joint Institute, Collaborative Specialization in Musculoskeletal Health Research

Knowledge mobilization offers academics an important opportunity to move beyond traditional classroom settings and engage communities in meaningful, accessible ways. The Canadian Association for Girls in Science (CAGIS) is Canada's largest and

longest-running STEM organization for girls aged 7–17, connecting young people with STEM professionals through hands-on activities and mentorship. Through our partnership with CAGIS, Western Anthropology Outreach, a graduate- and undergraduate-led public outreach team, develops interactive programming that brings biological anthropology to our community. We emphasize experiential learning, using hands-on activities to make scientific concepts accessible, engaging, and relevant to young learners. Events have included archaeological “cookie excavations,” hands-on exploration of human evolution through hominin cranial measurements, forensic anthropology activities, and museum visits that incorporate virtual reality experiences. These activities allow participants to engage directly with anthropological materials and methods while encountering STEM in ways that extend beyond conventional classroom learning. Importantly, these events also give young girls opportunities to meet female role models in STEM fields and broaden their perceptions of who can be a scientist and what a career in science can look like. Our partnership with CAGIS provides a mutually beneficial framework for knowledge mobilization, enabling university students to reconsider how specialized knowledge is communicated while developing transferable skills in teaching and public engagement. This presentation reflects on our experience developing CAGIS programming, offering strategies for designing hands-on activities for younger audiences and demonstrating how academics can leverage existing institutional resources and local partnerships to engage with their communities. We also examine challenges encountered throughout the development process, including translating complex concepts without oversimplification, adapting activities to participants' abilities and interests, and evaluating programming based on participants' engagement. These experiences show how outreach can share specialized knowledge and give academics an opportunity to reflect critically on and improve their approaches to teaching and public engagement.

12:00

From Ivory Tower to Public Square: The Practicalities of Knowledge Mobilization and the Power of Participatory Learning with Community

Wissler, Amanda; Martha Cassidy-Neumiller

1 Wissler: DeGroote Institute for Infectious Disease Research, McMaster University; 2 Cassidy-Neumiller: McMaster University

Recent geo-political events as well as the COVID-19 pandemic brought to light emergent anti-science and anti-education sentiments among the general population. For many of us who are academics and scientists, the COVID-19 pandemic and the reactions that the public had during that event (re)brought home that we must improve how we teach the public about research and better justify why our work is worthwhile and important to them. Despite this increased need for educational outreach and broader impacts, knowledge mobilization (KM) is a frequently overlooked and underappreciated aspect of research and education. Furthermore, good KM efforts can be hard, intimidating, and require skills that many of us in academia never learned such as advertising, early childhood education, arts and crafts, and personnel management. In this presentation, we illustrate how we facilitated our public KM events, rendering anthropological research on local histories accessible and tangible to the community, and developed partnerships that continue to bear fruit. We have two main goals for this presentation. First: share and explain some of the more practical aspects of this type of KM. Second: provide tangible examples of how we demystified the research process for our community through participatory and activity-based learning. Our KM was comprised of two one-day events intended to showcase Wissler's ongoing research on the 1918 flu pandemic in Hamilton, Ontario, as well as the archaeology of the area through hands-on activities aimed at participants of all ages and led by undergraduate researchers. What this experience showed us is that when we meet the community where they are at, when we reach out to them with a genuine spirit of sharing and the goal of demystifying academia and research, we may well find that they are reaching back.

12:15

“Where the Past is Present”: Using Bioarchaeological Research to Enhance 18th Century Storytelling at the Fortress of Louisbourg, NS

Amy B Scott 1; Mallory Corbett 2

1 Trent University, Departments of Anthropology & Forensic Science; 2 Parks Canada, Cape Breton Field Unit, Fortress of Louisbourg

With its costumed interpreters, immersive experiences, and geographic intrigue, the Fortress of Louisbourg National Historic Site of Canada has been fascinating the general public for the past 60 years. Situated on the Atlantic Coast in northeastern Unama'ki (Cape Breton Island), Parks Canada supports the storytelling at this unique 18th century site through extensive historical records and archaeological work. Since 2017, however, bioarchaeology has become a new contextual avenue of interest at Louisbourg. The Rochefort Point Cemetery was established around 1738 and was in use until the fall of the Fortress in the 1760s. As the largest and longest-used cemetery at the site, Rochefort Point is perhaps the most representative cemetery of the diverse 18th century population at Louisbourg. As such, the data gleaned from these individuals (264, to date) provides an opportunity to better understand the lives of those who lived outside the pages of historical texts and archaeological discoveries. By recognizing the value added through a bioarchaeological lens and the robust storytelling that is possible, Trent University in Partnership with Parks Canada has been able to translate skeletal data into effective knowledge sharing in three distinct ways, 1) making bioarchaeology accessible, 2) making bioarchaeology relevant, and 3) making bioarchaeology tangible. In line with Parks Canada's mandate to “foster public understanding, appreciation, and enjoyment” of these sites, public knowledge dissemination is the central pillar of our bioarchaeological research program at Louisbourg to the benefit of the 100,000+ visitors that experience the site every year. Excavation and research permission for this work has been granted by the Anglican and Catholic dioceses of Nova Scotia and in consultation with the Nova Scotia Mi'kmaq Chiefs.

12:30

What's inside the bundle? A 3D virtual museum powered by micro-CT scans for mummified animals from ancient Egypt

Alexandre Demers-Potvin 1; Shumeng Jia 1; Maris Schneider 2,3; Seyedmahdi Hosseinitabatabaei 1; Antonios Giakoumis 4; Emma Warner 1; Teagan Chow 5; Isa Shafique 4; Mazen Asali 6; Hubert Taïeb 7; Benjamin Provencher 7; Nicolas Piché 7; Vladimir Brailovski 8; Gregory Houston 9; Martin Morris 9; Annie Lussier 10; Anthony Howell 10; Andrew J. Nelson 2; Natalie Reznikov 1

1 McGill University, Department of Bioengineering; 2 Western University, Department of Anthropology; 3 Western University, Bone and Joint Institute, Collaborative Specialization in Musculoskeletal Health Research; 4 McGill University, Department of Electrical and Computer Engineering; 5 McGill University, Peter Guo-Hua Fu School of Architecture; 6 McGill University, School of Computer Science; 7 Comet Technologies Canada Inc., Object Research Systems; 8 École de technologie supérieure, Département de génie mécanique; 9 McGill University Libraries; 10 McGill University, Redpath Museum

Knowledge mobilization in biological anthropology must balance detailed scientific analysis with the preservation of natural and cultural heritage, due to the often-sensitive status of specimens and belongings. Preventive conservation, carefully planned curatorial practices, digitization, and narrative structures in museum exhibits help to attain that balance. This contribution focuses on exhibits featuring virtual reconstructions of specimens and cultural belongings, which allow broader online access, minimal physical handling, and long-term data preservation. We present seven

ancient Egyptian votive mummified animals housed at McGill University's Redpath Museum, now digitized for an online virtual exhibit. These votive bundles are approximately 2,000 years old (late Ptolemaic period), and include a cat, four birds, and two juvenile crocodiles. The structure of the virtual museum is designed from principles of museology and big data curation, in partnership with McGill University Libraries and Redpath Museum curators. Its central narrative of animals in ancient Egyptian culture connects specimens through their taxonomy and biological profile. Descriptive annotations are hierarchically organized from general to specific knowledge levels. To reveal the votive bundles' internal contents, we acquired non-destructive micro-CT scans of the mummified animals from the Redpath Museum's World Cultures collection. As an example, multi-scale micro-CT reconstruction of a mummified cat confirmed that it died as a healthy juvenile, based on assessments of dental development, epiphyseal growth plates, and antemortem and perimortem trauma. The shrouds forming the cat's votive bundle had a microscopic structure consistent with linen, a common textile material in ancient Egypt. The virtual reality museum is intended for science outreach, semantic linking of collections, and serendipitous discovery. It currently constitutes a pilot project from which public engagement will be monitored and is expected to foster broader interest in biological anthropology and related disciplines while supporting future research and education objectives.

FRIDAY • Session 1 • Molecular anthropology 1

Chair: Joseph Orkin

2:30

Disease Transmission Dynamics at the Interface between Wildlife and Human Settlements in Biodiverse Uganda

Rebecca Stumpf 1; Michael Nute 2; Brenda Wilson 3; Meng Ho 4; Celsus Sente 5; Howard Onyuth 6

1 University of Illinois at Urbana Champaign, Dept. of Anthropology; 2 Rice University, Dept of Computer Science; 3 University of Illinois at Urbana Champaign, Dept. of Microbiology; 4 University of Illinois at Urbana Champaign, Dept. of Microbiology; 5 Makerere University, College of Veterinary Medicine, Animal Resources and Bio-security; 6 University of Tennessee Knoxville, Dept. of Veterinary Medicine

Emerging pathogens are a growing global threat. Human encroachment and climate change increase interactions between wildlife and human communities, leading to greater zoonotic and epizootic spillover. The genetic similarity of humans and non-human primates (NHPs) provides an opportunity for pathogens to impact both human and animal populations, especially in areas where human-wildlife conflict is increasing. Key gaps remain in identifying how pathogens move through complex, multi-host environments. This project examines common viruses as a models to study disease transmission in a biodiverse region of Uganda. Using host and ecological sampling, next-generation sequencing (NGS), and phylogenetic analysis, we track pathogen strain presence, diversity, and movement across hosts and environmental sources. We apply strain variation and data visualization to assess pathways for transmission. Ultimately these analyses will improve understanding of zoonotic and anthroponotic spillover, inform public health and conservation strategies, and provide a scalable framework for other emerging pathogens to prevent future outbreaks and advance public health. This research is supported by the Fogarty International Center of the National Institutes of Health Award Number R01TW012932.

2:45

Insights into the palaeopathology of vitamin D deficiency from mice and non-human primates

Elsa M. Van Ankum 1; Liubov Lobanova 1; Tim D. Smith 2; Julia C. Boughner 1

1 University of Saskatchewan, Department of Anatomy, Physiology, & Pharmacology; 2 Slippery Rock University of Pennsylvania, School of Physical Therapy

Human vitamin D deficiency remains of high interest to bioarchaeologists, particularly related to rickets and osteomalacia. Aspects of the palaeopathology of vitamin D deficiency remain uncertain, including the molecular mechanisms underlying skeletal and dental lesions seen in the archaeological record. To answer these questions about etiology, bioarchaeologists may look to biomedical sciences, primatology, and other disciplines that examine lines of mechanistic evidence not available in archaeology by modeling vitamin D deficiency in lab mice and non-human primates (NHPs). However, the extent to which mice, NHPs, and humans are similar in their vitamin D-related molecular pathways and pathologies is not well known. We reviewed data from biomedical sciences, primatology, and bioarchaeology to compare vitamin D molecular pathways and skeletal/dental manifestations of vitamin D deficiency amongst mice, NHPs, and humans. We also used immunohistochemistry to probe for expression of MSX1, PAX9, RANKL, and VDR proteins in the vitamin D pathway within craniodental tissues of NHPs (*Callithrix jacchus*, *Papio anubis*, *Saimiri boliviensis*) and wildtype and vitamin D-deficient mice (*Mus musculus*). Facial bone deformation, malocclusion, tarsal ankylosis, and thickened cranial bones were signs of vitamin D deficiency seen in NHPs that merit future investigation in humans relative to greater understanding of rickets and osteomalacia. Despite interspecies variation in vitamin D pathways and pathologies, protein expression was generally conserved. Also, vitamin D deficient mice had less intense expression of PAX9 and VDR compared to their wildtype counterparts. Though molecular and pathological homology is not a given, NHPs and mice are useful models of human vitamin D deficiency. We advocate for inclusion of data from biomedical sciences and primatology into the archaeological study of vitamin D deficiency, an approach we call evo-devo bioarchaeology.

3:00

Genomic and behavioral evidence for social olfaction in white-faced capuchins

Muhammad Shoaib Akhtar 1; Nelle K. Kulick 1; Alice C. Poirier 1; Hadjira Hamou 1; Carlota F. Galán-Plana 2; Suheid Romero Morales 3; Saul Cheves Hernandez 3; Gabriel W. Benson 3; Catalina Chaves-Cordero 3; Raquel Hernandez Rojas 1; Valeria Villero 4; Meg Crofoot 5; Thore Bergman 6; Joseph D. Orkin 7; Brendan J. Barrett 5; Jenny Tung 2; Katherine M. Jack 6; Amanda D. Melin 1

1 University of Calgary, Department of Anthropology and Archeology; 2 Max Planck Institute for Evolutionary Anthropology, Department of Primate Behavior and Evolution; 3 Área de Conservación, Guanacaste, Costa Rica; 4 KSTR Wildlife Rescue Center, Quepos, Costa Rica; 5 Max Planck Institute of Animal Behavior, Department for the Ecology of Animal Societies; 6 Tulane University, Department of Anthropology

Olfaction is a key sense for many mammals, but its role in the social lives of anthropoid primates (monkeys, apes, humans) is still poorly known. Studies of chemosensory receptor genes and olfactory behaviors can provide insight into the evolution and current uses of olfaction in social contexts. Vomeronasal receptor (VR) genes are especially relevant for social olfaction as they are specialized for the detection of pheromones and other cues involved in social signaling, reproductive behavior, and individual recognition in mammals. However, they are of uncertain significance in anthropoid primates, who have reduced olfactory morphology and chemosensory gene repertoires relative to many mammals. Here, we examined the VR gene repertoires and genetic diversity in

populations of wild white-faced capuchin monkeys (*Cebus imitator*, parvorder Platyrrhini) from Costa Rica and Panama using DNA sourced through fecal FACS (fluorescence-activated cell sorting from noninvasively collected fecal samples) or tissue. Using neutral loci, we also estimated background levels of variation and accounted for the effects of demography. We annotated 12 intact, 28 disrupted, and seven truncated VR genes. Tajima's D for intact VR genes was lower than neutral loci, consistent with potential evolutionary constraint. For intact VR genes, haplotype estimation networks revealed a single intact haplotype dominates in study capuchin populations. We complement the genomic analyses with a detailed observational study of wild capuchins, documenting a rich and varied ethogram of olfactory behaviors with a clear potential for social communication in this species. Overall, we provide evidence that VR genes are maintained by natural selection in a wild platyrrhine monkey. Our study provides compelling evidence of a role of olfaction in the rich social world of capuchins and a basis for future research to further explore the factors shaping contributions of olfaction to social communication and evolution in primates and other mammals.

3:15

Ethanol is widespread in wild tropical and subtropical fruits and flowers

Melin, AD 1; Casorso JG 1; Wells K 2; DePasquale AN 1; Bowland AC 3; Aguado WD 4; Alsisto S 5; Alves EB 6; Ancrenaz M 7; Andicene FS 8; Anjum M 9; Aureli F 10; Barnes M 3; Bersacola E 3; Bisht M 11; Carvalho S 8; Darosci AAB 12; Deare T 3; Di Fiore A 13; Dominy NJ 14; Freymann E 15; Gill T 11; Goossens B 16; Guju L 17; Hanya G 18; Harrison XA 3; Hernández-Salazar LT 10; Hussein N 1; Johnson SE 1; Kakuta F 18; Kimpara R 18; Kurihara Y 19; Lee W 20; Masi S 21; Minamikawa M 18; Nellissen L 21; Nevo O 22; Ostner J 23; Petersen-Leong MA 24; Poirier AC 1; Ramakrishna I 17; Ramangason H 1; Ramirez-Torres CE 10; Razafimandimby DN 25; Rodrigues LV 6; Romero Morales S 26; Rothman JM 27; Schülke O 23; Tuh FYY 28; Usami A 19; Utami Atmoko SS 29; Vogel ER 4; Carrigan MA 30; Hockings, KJ 3

1 University of Calgary, Calgary, Canada; 2 Swansea University, Swansea, UK; 3 University of Exeter, Cornwall, UK; 4 Rutgers, The State University of New Jersey, New Brunswick, NJ, USA; 5 Sabah Wildlife Department, Kota Kinabalu, Sabah, Malaysia; 6 Instituto Federal Goiano, Campus Posse, Goiás, Brazil; 7 Kinabatangan Orang-Utan Conservation Programme, Kota Kinabalu, Sabah, Malaysia; 8 Gorongosa National Park, Goíne, Mozambique; 9 Centre for Wildlife Studies, Bengaluru, India; 10 Universidad Veracruzana, Veracruz, Mexico; 11 University of Delhi, Delhi, India; 12 Instituto Federal Goiano, Goiás, Brazil; 13 University of Texas at Austin, Austin, TX, USA; 14 Dartmouth College, Hanover, NH, USA; 15 University of Oxford, Oxford, UK; 16 Cardiff University, Cardiff, CF10 3AX, UK; 17 Centre for Wildlife Studies, Bengaluru, India; 18 Kyoto University, Kyoto, Japan; 19 Shizuoka University, Hamamatsu, Japan; 20 University of Tsukuba, Tsukuba, Japan; 21 CNRS, University Paris Cité, Paris, France; 22 German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, Leipzig, Germany; 23 University of Göttingen, Göttingen, Germany; 24 Alberta Biodiversity Monitoring Institute, University of Alberta, Edmonton, Alberta, Canada; 25 Université d'Antananarivo, Antananarivo, Madagascar; 26 Area de Conservación Guanacaste, Liberia, Costa Rica; 27 Hunter College of the City University of New York, New York, NY, USA; 28 Sabah Parks, Kota Kinabalu, Sabah, Malaysia; 29 Universitas Nasional Jakarta, Jakarta, Indonesia; 30 College of Central Florida, Ocala, FL, USA

Dietary ethanol is hypothesized to have been a major selective force for tropical frugivores and nectarivores. Yet, its prevalence in wild fruits and flowers is poorly known. We quantified fruit (n = 591 species) and floral (n = 37 species) ethanol concentration across 18 countries and evaluated phylogenetic and environmental predictors of variation. Ethanol was detected in the ripened fruits of 72% of angiosperm species sampled repeatedly (211 species, n ≥ 3 per species; 0.021% - 3.9% alcohol by volume (ABV)). Ethanol was also detected in the flowers of 12 species, (0.037% - 0.73% ABV). Maximum fruit ethanol varied with temperature, humidity, and phylogenetic relatedness, and it was higher in ripe fruits from the forest floor relative to their canopy counterparts. To provide dietary context for a key frugivorous group, we extrapolated daily ethanol consumption for 10 primate species. Estimated maximum daily

ethanol ingestion for primates ranged from negligible to 0.72 g/kg/day on average (equivalent to 5.1 10-g international standard drinks for a 70 kg human). Our findings reveal that ethanol is a widespread feature of plant reproductive tissues, structured by both evolutionary history and environmental conditions, and was likely a pervasive selective force shaping the evolution of fruit- and nectar-feeding animals.

FRIDAY • Session 2 • Forensic Anthropology 1

Chair: Élisabeth Cuerrier-Richer

2:30

If at first you do succeed...a re-run of dental measurement sex estimation when molecular sex data 'changed'

Jennifer Laughton 1

1 University of Alberta, Department of Anthropology

At CABA 2025, I presented on the creation of several dental measurement sex estimation equations. That work had produced twelve valid equations created, seven with correct classification rates >80%, and two with rates >90%. When tested against a 'known' sex sub-sample, 24/26 individuals were correctly classified, suggesting a strong correlation between dental sex and molecular and osteological sex. The results were uplifting and showed the usefulness of dental measurements for estimating sex in this archaeological population. Shortly before CABA, my project received new/updated molecular sex data that I had hoped would improve the results. It did not; I re-ran the data and found that the original results were no longer valid, warranting a re-write of the paper as the changes in sex estimation based on the updated data turned a series of moderate to high accuracy sex estimation equations into two moderately accurate equations. This presentation will compare the new results to the old, showing the statistical changes that incorporating new and updated sex data had on the overall results. The new data increased the sample size from 81 to 99, but decreased the accuracy of the created equations from >90% to 60–90%, equation dependent. I will discuss the importance of revisiting or updating study results when new information comes to light, and question whether our sex estimation methods stand the test of time.

2:45

A Test of Sex Determination for Recovered First and Second World War Soldier Remains

Scott C 1; Hoppa R 1

1 Department of Anthropology, University of Manitoba, Winnipeg, MB

The remains of missing and unaccounted for Canadian service members from the First and Second World Wars are found and recovered every year. As presented previously, the nature in which service members fell along with local taphonomic conditions lead to unique preservation and recovery. For this analysis a sample of 130 soldiers' remains, recovered and evaluated for identification by the Commonwealth War Graves Commission (CWGC) in Arras France was analysed. As a component of basic identification in forensic anthropological contexts, a variety of methods for determination of sex was undertaken on the presumptive all-male sample. The levels of accuracy and congruency both within and between methods will be presented, and observed deviations from expected outcomes discussed. The efficacy of less standardised methods as a result of the context specific nature of recovered remains will also be highlighted.

3:00

External Ear Morphometry in the Estimation of Sex and Stature among Igbos in Nigeria

Gabriel Oladipo 1; Duruh Joseph 1; Obarilomate Ollor 1; Gbenga Babatunde 2

1 University of Port Harcourt, Department of Anatomy; 2 Nigerian Navy Intelligence School, Ubima-Port Harcourt

This cross-sectional study measured ear length, ear width, lobe length, lobe width, tragus length, and tragus width, alongside stature, in 300 adult Igbo Nigerians (150 male, 150 female) aged 18–50 years. Males exceeded females significantly and consistently across all seven parameters ($p < 0.001$), from stature (170.79 vs. 159.29 cm) to tragus width (7.80 vs. 6.53 mm), reflecting uniform sexual dimorphism rather than dimorphism in a few traits. Combined-sex correlations between stature and ear measures ranged from $r = 0.30$ to $r = 0.67$, yielding a regression model explaining 61% of height variance ($SEE = 4.21$). Sex-stratified analysis showed this predictive power collapsed in males ($R^2 = 0.03$) and remained modest in females ($R^2 = 0.21$). Discriminant function analysis achieved 96.7% overall classification accuracy (93.3% males, 100% females), with tragus dimensions as the strongest discriminators (canonical correlation = 0.903). Ear morphometry is thus a highly reliable, uniformly dimorphic, Igbo-specific sex-estimation tool, though a weaker, sex-dependent predictor of stature.

3:15

Beyond Binary Classification: Probabilistic and Morphoscopic Approaches to Sex Estimation*

Bliss Madrid 1; John Albanese 1

1 University of Windsor, Department of Biology

Accurate sex estimation is fundamental to forensic anthropology and bioarchaeology, yet traditional binary approaches may oversimplify continuous patterns of human skeletal variation. This study compares two approaches to sex estimation: Albanese's (2003) probabilistic multivariate pelvic and femoral method and Sutherland and Suchey's (1991) morphoscopic standard for assessment of the ventral arc. Using a documented sample from the Robert J. Terry Anatomical Collection ($n = 122$), the study evaluates differences in accuracy and examines how each approach represents uncertainty in sex allocation. The Albanese (2003) pelvic and femoral method achieved 95.9% overall accuracy with balanced allocation between documented females and males. In contrast, morphoscopic assessment of the ventral arc demonstrated substantial overlap between documented females and males, with 19.7% of documented males exhibiting a ridge resembling the traditionally described female ventral arc. These findings highlight the limitations of treating individual morphological traits as definitive indicators of sex and demonstrate the value of considering skeletal variation probabilistically. Notably, applying a probabilistic "grey zone" (p -values of 0.2 to 0.8) identified individuals whose skeletal morphology did not strongly support either classification, providing an explicit means of representing uncertainty and morphological overlap. Ultimately, a probabilistic framework may reduce forced classifications, account for biological variation, and provide a more nuanced and ethically grounded approach to sex estimation.

FRIDAY • Session 1 • Molecular anthropology 2

Chair: Joseph Orkin

4:00

The Genetic Landscape of Malaria Resistant Adaptations in Nine East African Populations

Arra Oman 1,2; Simon Gravel 2,3

1 McGill University, Victor Phillip Dahdaleh Institute of Genomic Medicine; 2 University of Toronto, Department of Anthropology; 3 McGill University, Department of Human Genetics

Genetic variants associated with reduced likelihood of malarial infection, reduced symptoms, and reduced mortality are among the strongest signals for recent selection in the human genome. A complex interplay of environmental, social and genetic determinants impacts the risk and severity of malarial infection such as altitude, humidity, subsistence strategy, age, population density, and acquired immunity. East Africa has highly variable ecological landscapes and complex historical patterns of human migration, which has resulted in a diversity of languages and socio-cultural practices, as well as genetic diversity. There exists a knowledge gap in characterizing human malaria resistance adaptations in this region, with most recent research focusing primarily on malaria incidences, shifting malaria ecology, and targets for pharmaceutical interventions. This presentation integrates genomic, anthropological, and ecological data to investigate how diverse selective pressures may shape human genetic adaptation to malaria in Ethiopian and Sudanese populations in East Africa. Using newly-available whole-genome data provided by phase 2 of the Consortium on Asthma among African-ancestry Populations in the Americas (CAAPA) project, this presentation will provide a first look into varied genomic responses to endemic malaria in nine populations. Building on the earlier efforts of the CAAPA study, the CAAPA2 dataset includes East African individuals and thus captures genetic variation from more diverse African populations than previously reported. This study investigates known malaria-associated gene and variant differentiation to uncover patterns of resistance both within and between included populations. Employing F statistics, allele frequencies, LOEUF conservation scores, linkage disequilibrium, hierarchical cluster analyses and variant annotation, this study identifies patterns of resistance suggestive of local adaptation for two distinct strains of malaria among four high altitude Ethiopian horticulturist populations. These results highlight how differences in regional malaria ecology, subsistence practices and demographic history can lead to varied adaptations to a between geographically proximate groups with shared demographic histories.

4:15

Ancient genomes, modern minds: Understanding how archaic DNA shapes mental health

Christopher Kendall 1; Christie Burton 1; Janet Kelso 2; Michael Wainberg 3,4; Esteban Parra 5; Jennifer Crosbie 1,4

1 Neurosciences and Mental Health, The Hospital for Sick Children, Toronto, Ontario, Canada; 2 Department of Evolutionary Genetics, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany; 3 Prosserman Centre for Population Health Research, Lunenfeld-Tanenbaum Research Institute, Mount Sinai Hospital, Toronto, Ontario, Canada; 4 Department of Psychiatry, University of Toronto, Toronto, Ontario, Canada; 5 Department of Anthropology, University of Toronto, Mississauga, Mississauga, Ontario, Canada

Mental health and substance use disorders are complex traits that often negatively impact those afflicted. To date, little research has explored how variants inherited from Neanderthals and Denisovans in the evolutionary past contribute to these disorders in modern human populations. Using the largest available case/control genome-wide association studies currently available for 16 mental health and substance use disorders, we report the impact archaic

variants have on these traits. Using leading methods from genetic epidemiology and psychiatric genomics, including SNP heritability, fine-mapping, and colocalisation, we calculated the contribution of archaic variants to mental health and substance use disorders. We found that archaic variants are significantly depleted for these traits compared to non-archaic variants. We discovered 100 causal archaic variants, two which significantly increase depression risk in European populations. We report for the first time the role of archaic variants functioning as mQTLs and sQTLs, where they significantly regulate methylation and splicing patterns of several genes expressed in the brain. Our results suggest that the human evolutionary past is still significantly influencing the lived experiences of modern human populations, influencing risk for mental health or substance use disorders.

4:30

Improving Detection of Gastrointestinal Parasite Infections in the Roman Empire Using a Combination of Microscopy and Sedimentary Ancient DNA

Marissa L. Ledger 1,2; Tyler J. Murchie 3; Melanie Kuch 1; Piers D. Mitchell 4; Hendrik Poinar 1

1 McMaster Ancient DNA Centre, Department of Anthropology, McMaster University, Hamilton, ON; 2 Department of Pathology and Molecular Medicine, McMaster University, Hamilton, ON; 3 Hakai Institute, Heriot Bay, BC; 4 Department of Archaeology, The Henry Wellcome Building, University of Cambridge, Cambridge, UK

The recovery of parasites from archeological fecal samples provides a unique record of gastrointestinal infections in the past that is inaccessible using human remains. Gastrointestinal parasites are commonly recovered using microscopy, which allows for direct visualization of preserved helminth eggs. The main limitations of microscopy are the inability to identify most taxa to the species level, reliably identify poorly preserved parasites, or further investigate their evolutionary history. Despite improvements in sedimentary ancient DNA (aDNA) methods to overcome challenges with inhibitors in the sample matrix, recovery of minute amounts of parasite DNA in complex sediment samples has been challenging. Sedimentary aDNA methods optimized for paleoparasitology were developed to overcome these limitations. Microscopy alongside these optimized aDNA methods was used to identify parasites in fecal samples from six Roman period archeological sites located in Belgium, Italy and Türkiye (2nd c. BCE to the 7th c. CE), to further explore parasite diversity in the Roman period and compare results from the different methods. Microscopy recovered eggs from roundworm (*Ascaris* sp.), Capillariids, lancet liver fluke (*Dicrocoelium dendriticum*), beef/pork tapeworm (*Taenia* sp.), and whipworm (*Trichuris* sp.). Parasite DNA was recovered from five samples. Four samples contained *Ascaris* sp. DNA and two samples contained *Dicrocoelium dendriticum* DNA alongside microscopically identified eggs. From as little as 0.2 g of ancient sediment, microscopy detected the highest diversity of taxa, while aDNA methods using 2.5 g of sediment were able to recover near-complete ancient mitochondrial *Ascaris* genomes. Ancient DNA recovered from samples containing poorly preserved eggs allows for a more confident exploration of the morphology of ancient eggs, but parasite DNA recovery was more successful for samples with higher egg concentrations. A combination of methods can provide the most comprehensive reconstruction of parasites affecting past populations, while aDNA complements microscopy by providing additional taxonomic and phylogenetic detail.

FRIDAY • Session 2 • Forensic Anthropology 2

Chair: Élisabeth Cuerrier-Richer

4:00

Proof of concept: stable isotopes for forensic tracing in South Africa

Maximilian J Spies 1; Odney wa Matji 2; Lucinda Evert 3; Ireen Mutombwa 2; Stephen Fonseca 3; Michael Richards 4; Judith Sealy 1

1 Department of Archaeology, University of Cape Town, South Africa; 2 South African Red Cross Society; 3 International Committee of the Red Cross, South Africa; 4 Department of Archaeology, Simon Fraser University, Canada

The irregular migration of people seeking better lives elsewhere is often caused by political and socio-economic instability in their home regions. Although this is a global phenomenon, people from the Horn of Africa in particular frequently embark on difficult journeys north towards Europe or south, via Tanzania, to South Africa. Unfortunately, deaths frequently occur, and identification and repatriation are challenging, made worse by limited forensic infrastructure and specialist personnel in many regions, resulting in a large-scale humanitarian crisis. An emerging forensic tracing tool may be able to assist: stable isotope analysis. Naturally occurring variations in isotopic ratios of the elements C, N, and S, amongst others, depend on environmental conditions, such as aridity, and biological processes, for example photosynthesis. These isotopic ratios are incorporated into human tissue from the food and water consumed. Measuring these isotopes in human tissue can provide dietary and environmental information that reflects population and geographic location, but limited data exist for Africa. Using EA/CF-IRMS in the Stable Light Isotope Laboratory at the University of Cape Town, we are in the process of analysing stable isotope ratios ($\delta^{13}\text{C}$, $\delta^{15}\text{N}$, and $\delta^{34}\text{S}$) in nail clippings donated by over 600 residents from across South Africa to establish local isotopic baselines. Our initial results reveal clear inter-regional differences that correlate with regional dietary and environmental variability. Strikingly, South African isotopic ranges differ substantially from those in Tanzania and southern Ethiopia, across C-N, C-S, and N-S bivariate isotope spaces. Comparing eastern African data to the initial South African samples illustrates the strong potential of stable isotope analysis in tracing contemporary human movement. It is a valuable investigative tracing tool, complementing biological profiles and other forensic techniques, to assist in the forensic and humanitarian identification of the deceased, especially migrants.

4:15

Using Pig Teeth as a Proxy for Understanding Heat Related Effects to Human Teeth

Grace Holmes 1; Julia Gamble 1

1 Department of Anthropology, University of Manitoba, Winnipeg, Canada

Teeth are an extremely durable element of the human skeletal system that can provide beneficial insight into bioarchaeological contexts and forensic cases; however, burnt teeth are understudied in cremation and other heat alteration contexts. This research used pig teeth ($n=296$) as a proxy for human teeth to identify target experimental conditions for heat exposure ranging from 100°C to 1000°C and 30 to 360 minutes. Metric and macroscopic analyses, photographs, and 3D scans were collected of the teeth before and after heat exposure. Preliminary results from 100°C-500°C demonstrate mass shrinkage rates of 1.87% to 30.82% for deciduous teeth and 2.52% to 27.94% for permanent teeth. This is important because these rates provide a baseline for comparison to human teeth studies. Colour changes generally followed established thermal alteration patterns, but variation between dental tissues demonstrates that teeth respond differently than bone to similar thermal alteration conditions. This research is foundational in identifying and testing ideal experimental conditions that will be

replicated using informed consent donated human teeth. The next phase of this research will investigate whether constant temperature exposure differs from exposure to temperature fluctuations. This will be beneficial for archaeological contexts and forensic examination by providing reproducible, experimentally derived benchmarks for estimating fire conditions and evaluating thermally altered evidence.

4:30

Building collaborations and knowledge through taphonomy at Canada's REST[ES] human decomposition facility

Élisabeth Cuerrier-Richer, Ph.D. 1,2

1 Université du Québec à Trois-Rivières, Département d'anatomie, Trois-Rivières, QC; 2 Groupe de recherche en science forensique, Trois-Rivières, QC

The site for Research on Experimental and Social Thanatology, or Recherche en Sciences Thanatologiques [Expérimentales et Sociales] (REST[ES]) in French, is a high security outdoor facility primarily dedicated to the physical, chemical and biological study of human decomposition, with a sociological dimension. Inaugurated in 2020, REST[ES] is currently the only human taphonomy facility in Canada, and the only bilingual site operating in both French and English globally, thus offering a unique niche to local, national and international scientists and practitioners interested in postmortem changes in this particular environment. Following an administration change in 2023, REST[ES] underwent a major restructuration and has now expanded its operations to include teaching, continuing education and community outreach, along with its initial research focus. In addition to introducing these new developments, this talk will present preliminary data from the facility's longitudinal study implemented in July 2024. The purpose of this research is to document and analyse human decomposition observed at REST[ES] following the documentation model developed by Megyesi et al. (2005). Over the course of two years and spanning all four seasons, a sample of 12 human donors from the Université du Québec à Trois-Rivières' Willed Body Donation Program were placed on the surface and covered with a cage to prevent scavenging. They were documented regularly using photographs and total body scoring sheets. Preliminary results indicate decomposition in this specific northern, wetland and forested climate yields significant variation that is not accounted for in the model proposed by Megyesi et al. (2005). Future research will therefore explore alternate models to search for a more appropriate representation of human decomposition in Canada. * While the abstract is submitted in English, the presentation slides will be bilingual.*

SATURDAY • Health, Disease and Mortality

Chair: Thomas Siek

8:30

Preliminary Results of a Paleoepidemiological Investigation of Non-Adult Neoplasms in Britain Using Historical Hospital Admission Records (1855-1921)

Thomas Siek

1 Department of Anthropology, McMaster University

Although there is ample paleopathological evidence for tumours across numerous time periods and spatial contexts, the paleoepidemiology of neoplastic disease is understudied. Evidence is limited to the few neoplasms that arise from or spread to bone, and scant mummified soft tissue remains. In order for paleo-oncology to advance, researchers must think laterally and seek out alternative forms of evidence. This investigation explores neoplastic disease in non-adults using data from the Historical Hospital Admissions Research Project (HHARP), an open-source database

with admissions records from four British children's hospitals (1855-1921 CE). The primary goals were to assess the extent of neoplastic disease present in the admissions data and the types of neoplasms reported. Search terms included: 'cancer', 'sarcoma', 'polyp' and 'tumour' to ensure the widest representation of malignant and benign neoplasms. There were 1,522 admittance records for 1,330 children (731 males; 593 females) between 1855 and 1921. The average age at admittance was 4.8 years, with the youngest being two days old and the eldest being 12 years. One hundred twenty-three different types of neoplasms were identified, including 31 types of brain tumours; this category had the highest number of cases ($n=487$). Of all reported outcomes, the majority were listed as 'not relieved' ($n=457$) followed by 'died' ($n=388$), 'relieved' ($n=312$) and 'cured' ($n=312$). These preliminary results represent a small fraction of the potential that HHARP has in expanding paleo-oncological and paleopathological research overall. From this investigation, it is clear that archival data holds insights into forms of neoplasms that are not typically observed in skeletal remains, allowing for more nuanced paleoepidemiological inquiry. This data also allows insights into other forms of disease not easily observed in skeletal remains, such as acute infections and mental health.

8:45

Reading between the lines: 1918 influenza pandemic survivors in the St. John's General Hospital, Newfoundland and Labrador

van Doren, T.P. 1; Mant, M. 2; Sattenspiel, L. 3

1 Department of Sociology and Anthropology, High Point University, High Point, North Carolina, USA; 2 Department of Anthropology, University of Toronto Mississauga, Mississauga, ON, Canada; 3 Department of Anthropology, University of Missouri, Columbia, Missouri, USA

Studies of the 1918 influenza pandemic generally focus upon mortality rather than the long-term survivorship outcomes of those who lived. We investigate survivorship of individuals hospitalized at the St. John's General Hospital, Newfoundland and Labrador with influenza and pneumonia (P&I) before and during the 1918 influenza pandemic to study morbidity and the long-term effects of viral pandemic illness. This study is possible due to a rare extant set of hospital admission records covering the 1918 influenza pandemic period. This novel dataset was used to follow the long-term survivorship journeys of individuals who lived through the baseline non-pandemic period (1914-1917) and the pandemic (1918-1920) (total $n = 127$). We linked individuals from both groups with newspaper articles, death registers, censuses, marriage records, headstones, and obituaries to trace their journeys following their hospitalization. Alongside these qualitative analyses, we analyzed the data quantitatively using a Kaplan-Meier log-rank test to identify differences in cumulative survivorship and a Cox proportional hazards model to predict survivorship, controlling for period, length of hospitalization, and age at hospitalization ($\alpha = 0.10$). The Kaplan-Meier results show no significant differences in survival probability between the two time periods (non-pandemic vs. pandemic P&I, $p = 0.12$). Cox proportional hazards results support this observation (HR for pandemic hospitalizations = 0.8, $p = 0.32$). The number of days spent hospitalized (HR = 1.01, $p = 0.096$) and age at hospitalization (HR = 1.05, $p < 0.001$) were significant predictors of survival probability. Our results, however, support previous literature regarding the novelty of the H1N1 influenza A virus in 1918, as there were significant differences in immediate hospitalization outcomes within each period, specifically that individuals hospitalized with pandemic P&I were significantly more likely to die in house ($p = 0.0024$) and the condition of those hospitalized with non-pandemic P&I was significantly more likely to "improve" ($p = 0.074$). This paper underlines the importance of archival records in biocultural health historical work.

9:00

From Miasma to Microbe: Tracing the Nosological Shift in Malaria Terminology in 19th-Century Ontario, Canada

Cooke, Amanda; Timothy Newfield, Megan B. Brickley

1 History & Biology, Georgetown University; 2 Anthropology, McMaster University,

Recording malaria mortality from 19th-century death records is impeded by inconsistent, symptom-based terminology, the absence of parasitological confirmation, and the varying levels of medical training among historical recorders. This study investigates the recorded terminology for malaria against supporting historical documentation and introduces a means of terminological precision through an adaptation of the Modified Istanbul Protocol. We analyzed $n=2,702$ malaria-related deaths from southern Ontario (1831-1900 CE) compiled from vital statistics, parish and municipal records. Cause-of-death terminology was recorded alongside demographic data (age-at-death, sex). Historical medical textbooks, conference proceedings, and archival documents informed the inclusion/exclusion criteria for malaria-related terms. The Modified Istanbul Protocol was adapted to classify malaria mortalities by confidence-levels (Diagnostic of (D), Typical of (T), Highly Consistent with (HC), Consistent with (C), Not consistent with (NC)). A temporal analysis of these categories in R revealed a significant decade-by-decade shift in recorded causes of death ($\chi^2 = 1066$, Monte Carlo $p < 0.0001$). Standardized residuals show a clear transition away from more generalized but still C or HC terms like 'bilious' and 'remittent' fevers, which were replaced in the 1880/1890s by sharp increases in T or D diagnoses like 'typho-malarial fever,' and 'malaria.' This transition captures a linguistic shift that aligns with late 19th-century parasitological and vector discoveries. This protocol provides a transparent framework for historic malaria diagnosis from death records and other historical sources, though some ambiguities persist. Limitations include remaining uncertainty due to non-medical informants, systemic gaps in population coverage, and historical disagreement over how specific disease terminology was interpreted and applied. Beyond its immediate findings, this study establishes a replicable adaptation of the Modified Istanbul Protocol that significantly enhances our interpretation of historical records, whether used to complement paleopathological data or to assess conditions that leave no skeletal trace.

9:15

Isotopic Insights into the Life of Irish Emigrants Following the Great Famine*

Alexie Roy 1; Meghan Pidskalny 1; Jocelyn S. Williams 1

1 Trent University, Department of Anthropology

The Great Irish Famine (1845-52) was a defining event in Irish history, resulting in widespread mortality, profound suffering, and mass emigration. Many Irish emigrants traveled to Canada, where thousands died in quarantine hospitals and were buried in unmarked graves. In 2020-21, a mass grave adjacent to Kingston General Hospital was excavated, and the remains of approximately 50 people were recovered. We analyzed ribs from 39 individuals, including 7 infants (18 years) using stable carbon ($\delta^{13}\text{C}$), nitrogen ($\delta^{15}\text{N}$), and sulfur ($\delta^{34}\text{S}$) isotope analysis to investigate diet, geographic origins, and infant feeding practices. We address three questions: 1) What foods did Irish people consume during the Famine, and can we use isotopic evidence to identify the consumption of corn-based food aid imported into Ireland; 2) Did dietary patterns differ by age; and 3) Were infants breastfed, and what evidence of breastfeeding or weaning is present among young children? Our results demonstrate significant differences in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ among age groups, driven primarily by differences between adults and both infants and children. Children exhibit the greatest isotopic variability, suggesting substantial dietary heterogeneity. $\delta^{34}\text{S}$ also varied among individuals, likely due to variation in geographic origins. We find minimal isotopic evidence

for the consumption of corn-based food aid. $\delta^{15}\text{N}$ values in some infants are consistent with breastfeeding, and weaning commenced at younger ages relative to non-famine periods. Together, these findings provide new insights into the dietary and migration experiences of Irish emigrants during the Great Famine and demonstrate the biological consequences of famine for infants and children, including changes in infant feeding and weaning practices.

9:30

Paleoparasitological Analysis of Pipe, Drain, and Latrine Samples From Late Antique (5th–7th c. CE) Aphrodisias, Türkiye*

Melissa van Loenen 1; Ine Jacobs 2; Duru Yagmur Basaran 3; Alis G. Altınel 4; Erica Rowan 5; Marissa L. Ledger 6,7

1 McMaster University, Department of Life Sciences; 2 University of Oxford, Department of Classics; 3 University College London, Department of Archaeology; 4 Anadolu University, Department of Classical Archaeology; 5 Royal Holloway University of London, Department of Classics; 6 McMaster University, Department of Pathology and Molecular Medicine; 7 McMaster University, McMaster Ancient DNA Centre, Department of Anthropology

This research aimed to investigate the parasitic diversity in Aphrodisias, Türkiye in Late Antiquity (5th–7th c. CE). Recovering parasites from the ancient city allows us to better understand the lifestyle of the population of Aphrodisias at the time. We processed and analyzed nine latrine, pipe, and drain samples from recent excavations completed in Aphrodisias. A 0.2 g subsample from each sample was disaggregated, microsieved, and then viewed under a microscope, capturing images and measurements of preserved eggs. Roundworm (*Ascaris* sp.), whipworm (*Trichuris* sp.), and lancet liver fluke (*Dicrocoelium dendriticum*) eggs were recovered. Multiple latrine and drain samples had very high egg concentrations for both *Ascaris* and *Trichuris* [5,755 eggs per gram (epg) of *Ascaris* sp. and 5,420 epg of *Trichuris* sp.] compared to other sites in the region. Enzyme-linked immunosorbent assays (ELISAs) were also conducted to screen for protozoan parasites within the samples, which were positive for *Entamoeba histolytica*. The presence of *Entamoeba histolytica*, *Ascaris*, and *Trichuris* is most likely attributable to Roman sanitation practices, which may not have been effective in curbing transmission of these fecal-oral parasites. With the presence of *Dicrocoelium dendriticum* introducing the question of false parasitism or real infection spread through diet. Most parasites recovered from the site are fecal-orally transmitted, further supporting evidence for the widespread presence of these parasites in the Roman Mediterranean. The particularly high egg concentration seen in the latrine suggests high worm burdens or infection amongst numerous individuals using the latrine. This is the first evidence for *Entamoeba histolytica* in the region during this time period.

9:45

Exploring social and ecological determinants of health among pastoral herders in rural South Africa

Erica Kilius 1; Tumelo Phuthing 2; Tsepo Lesholu 2; Ming Fei Li 3

1 University of Northern British Columbia, Department of Anthropology; 2 Duke University, Department of Evolutionary Anthropology; 3 Mehloping Community Tourism Trust, South Africa

Biocultural environments shape human health, particularly in pastoral communities negotiating unequal and often unpredictable access to essential resources. In this exploratory study, we investigate how location influences diet, water insecurity, and physiological status among 44 livestock herders in a rural agropastoral region of South Africa (10 residing in remote cattle posts, 34 living in more densely-populated villages). We collected 24 hour dietary recalls during winter season to calculate Individual Dietary Diversity Scores (IDDS), administered the Household Food Insecurity Access Scale (HFIAS) and short Water Insecurity Experiences Scale (WISE) to assess food and water insecurity, and

measured height and weight to calculate body mass index (BMI). Overall, 68% of participants reported insufficient food intake, 30% experienced water insecurity, and 23% were classified as underweight. Poisson regression models showed that herder location significantly predicted dietary diversity: village herders had 26% higher IDDS than cattle post herders (IRR = 1.26, $p = 0.010$). Generalized linear models indicated that BMI was significantly associated with water insecurity ($\beta = -0.43$, $p = 0.045$), with lower BMI individuals reporting greater water insecurity. These findings suggest that the spatial and social organization of pastoralist work can shape access to diverse foods, while water insecurity may manifest more directly through physiological strain. Ongoing analysis aims to integrate dietary data with accelerometry based activity and sleep measures to examine how socioecological conditions may shape daily energy use and overall health.

10:00

Large-scale biochemical characterization of neoplastic lesions in individuals from the Texas State Donated Skeletal Collection*

Rose-Ann Bigué 1; Maria Paula M. Marques 1; Vitor M.J. Matos 1,2; Luis A.E. Batista de Carvalho 1; Jane Buikstra 3; Daniel Wescott 4; Jason Parsons 5; Marcio Almeida 6; Carina Marques 1,7

1 University of Coimbra, Department of Life Sciences; 2 University of Évora, Department of Biology; 3 Arizona State University, School of Life Sciences Interdisciplinary Graduate faculty; 4 Texas State University, Department of Anthropology; 5 University of Texas Rio Grande Valley, School of Earth, Environmental, and Marine Sciences; 6 University of Texas Rio Grande Valley, Department of Human Genetics; 7 University of Texas Rio Grande Valley, Department of Anthropology, School of Integrative Biological & Chemical Sciences, and Department of Human Genetics.

Diagnostic limitations challenge the detection of malignant neoplasms in bioarchaeological skeletal remains. This study evaluates the biochemical technique Fourier Transform Infrared Spectroscopy-Attenuated Total Reflectance's (FTIR-ATR) potential to identify and distinguish cancer in bone from other diseases and taphonomic processes. We analyzed bone samples of the os coxa from 115 individuals that died between 2008 and 2023 ($n = 60$ females, $n = 55$ males; $M = 67.6$, $SD = 13.1$, 38-97 years) and belonging to the Texas State Donated Skeletal Collection. Osteoblastic and osteolytic lesions were sampled from bone metastases (CC) in individuals ($n = 70$) who died of cancer and were biochemically compared with individuals ($n = 24$) with similar lesions produced by other pathological conditions (LNCC) and with macroscopically normal bone from a control group ($n = 21$, NLC). Taking into account potential confounders, a penalized multinomial logistic regression integrating Principal Components (intensity; wavenumber [cm^{-1}] position), signal type, and band shape revealed significant differences (PC1 [$z = 2.228$, $p = .026$]; PC3 [$z = -2.731$, $p = .006$]) between CC and NLC in the intensity of the lipids/collagen (vCH), Amide II, carbonates (v3), and phosphates (v4). Carbonyl groups (1700-1770 cm^{-1}) occurred more in CC (28.6 % [20/70]; $p = .005$) than NLC (0.0 % [0/21]), but not than LNCC (54.2 % [13/24]; $\chi^2(1) = 5.139$, $p = .023$). Those carbonyl groups' spectroscopic signals, clinically deemed "cancer markers", also appear in other pathological conditions with similar lesion typology in our study. This large-scale research demonstrated the utility of FTIR-ATR for bone metastasis detection, with implications for paleopathological and clinical cancer diagnosis. Limitations include the proportion of cancer versus other disease categories. Future work will focus on detailed analyses of additional potential biases.

10:15

Barriers to Human Identification in Forensic Anthropological Casework in the Western Cape, South Africa: A Retrospective Analysis

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Introduction: Identifying unknown individuals in medico-legal death investigations, particularly in advanced decomposition, poses significant challenges. This study evaluated human identification outcomes in forensic anthropological casework and examined barriers to successful identification in the Western Cape, South Africa. **Materials & Methods:** A retrospective review was conducted of 172 forensic cases (174 individuals) referred to Forensic Anthropology Cape Town (FACT) between 2006 and 2018 (HREC REF: 263/2019). **Results:** Most individuals were male (67%) and older than 35 years (54%). Despite high accuracy of anthropological methods among confirmed identifications (98% for sex, 80% for age-at-death, 100% for stature), only 37% (61/168) individuals were identified, while 49% (84/168) remained unidentified. Four major barriers were identified. First, delayed consultations (mean 100 days between discovery and anthropological examination) and limited scene attendance resulted in loss of contextual evidence. Second, regional taphonomic baseline data for many recovery environments was absent. Third, pathological conditions, present in 69% of cases, reduced precision in age-at-death estimation. Fourth, although 41% of decedents presented with ante-mortem trauma, the absence of centralised medical records precluded comparative analyses; similarly, despite highly accurate stature estimations, only four individuals had documented height records. A social dimension was also identified: five individuals were recovered from outdoor human-made shelters, suggesting houselessness, a population less likely to be reported missing. **Conclusions:** Identification failure in the Western Cape is not primarily due to deficiencies in anthropological estimation, but rather to systemic procedural, methodological, data, and social barriers. Addressing these limitations is essential for improving identification rates and providing socio-criminal justice.

SATURDAY • Palaeoanthropological Society of Canada (PASC) 1

Chairs: Mark Collard and Michelle Drapeau

11:00

Stone by Stone: Simulating Neanderthal Mobility and Resource Use during MIS 3

Amélie Vallerand 1; Claudine Gravel Miguel 2; Julien Riel-Salvatore 1

1 Université de Montréal, Département d'anthropologie; 2 New Mexico Consortium

Understanding Neanderthal land use and resource exploitation during Marine Isotopic Stage 3 (MIS 3; 57–29 ka BP) is central to discussions of behavioural complexity and adaptability. Yet the fragmentary archaeological record and the invisibility of behavioural processes make these questions difficult to address using traditional archaeological approaches. This paper explores how integrating Geographic Information Systems (GIS) and agent-based modelling (ABM) can provide new insights into Neanderthal mobility, raw-material acquisition, and landscape use in the Liguro-Provençal arc. Our approach combines palaeoenvironmental reconstruction, spatial analysis, and computational simulation to investigate how topography, raw-material accessibility, and memory may have shaped mobility strategies. GIS provides both a spatial and environmental framework for integrating terrain, hydrology,

geological maps, and archaeological site distributions. Archaeological and geological data from key Middle Palaeolithic sites, including Riparo Bombrini and Arma Veirana, inform the structure of the model. Implemented in NetLogo, the ABM simulates Neanderthal groups moving through a GIS-based virtual landscape and allows behavioural processes and environmental constraints to be modelled explicitly. Beyond developing a specific model, this research addresses broader methodological questions in palaeo-GIS. It examines how computational simulation can help overcome challenges posed by sparse archaeological data, extensive spatial scales, and the difficulty of inferring behaviour from material remains. By moving beyond static representations of landscapes, the integration of GIS and ABM provides a framework for generating and testing dynamic hypotheses about human–environment relationships. At the same time, this approach highlights the epistemological limitations of computational models. Their value lies not in reproducing the past in detail, but in making assumptions explicit, exploring uncertainty, and generating testable hypotheses. Ultimately, this study demonstrates the potential of combining palaeo-GIS and ABM as an experimental framework for investigating Neanderthal mobility and making visible the behavioural processes underlying archaeological patterns.

11:15

Form and Function in Upper Palaeolithic Eyed Needles from Cova Gran de Santa Linya, Northern Catalonia, Spain: A Comparative and Experimental Investigation*

Kaia Carr-Meehan 1; Javier Sánchez-Martínez 2; Jeremy A. Beller 3; Mark Collard 1

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Over the last decade, several authors have argued that the appearance of eyed bone needles during Marine Isotope Stage 2 is indicative of the adoption of complex, tailored garments by Upper Palaeolithic (UP) humans as a response to climatic deterioration. Although it is plausible, this hypothesis has yet to be tested. This is a problem because ethnohistorical evidence indicates that traditional eyed needles were not solely used to create tailored clothing. With this in mind, we are undertaking a study to shed light on the relationship between form and function in a sample of UP (n=9) and post-UP (n=3) eyed needles from the site of Cova Gran de Santa Linya (CG) in northern Catalonia, Spain. The study has three parts. First, we are reviewing the ethnographic and historic literature to generate a form-function typology for the eyed needles used by traditional societies in the recent past. Second, we are using Computerised Tomography to analyse the size and shape of the needles from CG. Lastly, we are employing a digital microscope to identify microwear indicative of use on the CG needles and undertaking replicative experiments to understand the significance of the use-wear patterns. Here, we will provide details of the analyses, present the results we have obtained so far, and discuss the latter's implications.

11:30

The evolution of musicality: Preliminary results of a cross-cultural test of competing hypotheses

Caroline Crinson 1; Laurie Nixon-Darcus 2; Mark Collard 1

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Music is a near-universal feature of human life, yet its evolutionary origins remain unclear. Existing explanations treat musicality as a by-product of other cognitive changes, a result of sexual selection, an adaptation for group cohesion or parent-child bonding, or an adjunct to language acquisition. But so far none of these

hypotheses has proven fully satisfactory. Here, we report preliminary results from a study that is approaching the problem via the functions of music suggested by the ethnographic, historical, and archaeological records. Drawing on the two main datasets curated by the Human Relations Area Files, we reviewed 421 documents pertaining to 125 cultures. We identified 990 mentions of music, defined as unique quotes or images relating to music. Each mention was coded for the following functions: Art, Courtship, Education, Entertainment, Expression, Family, Group Cohesion, Harm, Identity, and Religion. A given mention was assigned a single function or multiple as appropriate. In total, we assigned 2,224 functions to the 990 mentions of music. Preliminary results suggest that historically Group Cohesion was music's most common function. It comprised 443 (18%) of the functional assignments. Expression and Religion were the next most common functions, accounting for 398 and 392 functional assignments, respectively (both 16%). The fourth most common function was Identity (381 functional assignments, 15%). This was followed by Entertainment (280 functional assignments, 11%). The remaining functions each accounted for less than 10% of functional assignments. Connecting the functions to the hypotheses resulted in strong support for the group cohesion hypothesis. Sixty-seven percent of the functional assignments can be construed to support this hypothesis. None of the other hypotheses came close to this level of support; only 1-4% of the functional assignments could be construed to support them. Thus, the preliminary results of the study suggest that musicality evolved to support group cohesion.

11:45

Plasticity of Phalangeal Curvature in Non-Human Hominoids*

Kévin Joanin 1

1 Université de Montréal, Département d'anthropologie

Phalangeal curvature of the hand is commonly used in paleoanthropology as a morphofunctional indicator of arboreal locomotor behavior. This interpretation was strengthened by the assumption that phalangeal curvature is a plastic trait, meaning that its morphology is shaped by biomechanical loading generated through repetitive activities over the course of life, particularly during growth. Recent work has challenged this assumption by finding no difference in phalangeal curvature between arboreal chimpanzees and a chimpanzee captured at birth and raised in captivity with limited opportunities for climbing. My research aims to investigate more broadly the influence of locomotor environment on phalangeal curvature in adult non-human hominoids by directly comparing captive and wild individuals. If phalangeal curvature is plastic, individuals raised in captivity from birth or early life, and therefore generally exposed to reduced arboreal locomotor demands during growth, are expected to exhibit less curved phalanges than their wild counterparts. Conversely, the absence of differences between the two groups would be consistent with a limited effect of locomotor environment on this trait. The sample includes captive and wild chimpanzees, gorillas, orangutans, and hylobatids, with most captive individuals originating from zoological collections. It consists of three-dimensional models available through MorphoSource as well as scans collected from several European osteological collections. Proximal phalanges of digits I-V and intermediate phalanges of digits II-V were oriented in a standardized anatomical position to obtain their sagittal profile. A series of anatomical landmarks was then placed using Dragonfly software to quantify curvature using the Included Angle (IA). Preliminary analyses conducted to date do not reveal systematic differences in phalangeal curvature between captive and wild individuals. These results suggest that the relationship between phalangeal curvature and locomotor behavior in hominoids may not be as plastic as commonly assumed, with implications for the functional interpretation of fossil remains.

12:00

The role of locomotor evolution in shaping patterns of magnitudes of morphological

integration in the extant hominoid and cercopithecoid hind limb skeleton

Sarah E. Friesen 1; Mark A. Conaway 1; Lauren Schroeder 1,2

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Morphological integration describes the coordinated way that traits in an organism change. Patterns of magnitudes of morphological integration influence the degree to which selective pressures influence trait changes and can, themselves, evolve. These patterns provide insight into changes observed in the fossil record. We present an analysis of magnitudes of morphological integration within anatomical, functional, and developmental modules in the catarrhine femur, tibia, talus, and calcaneus. We tested the following three predictions: 1) Cercopithecoids will exhibit higher integration than non-human hominoids due to greater functional divergence between the hind and fore limb of hominoids; 2) *Homo* will exhibit unique patterns of magnitudes of integration due to the evolutionary demands of bipedality; 3) Taxa with high body size dimorphism will be more integrated compared to less sexually dimorphic taxa to ensure the proper functioning of the hind limb in large males. Our sample comprised 40 adult individuals deriving from 10 catarrhine genera (n=400): *Colobus*, *Papio*, *Macaca*, *Cercopithecus*, *Chlorocebus*, *Hylobates*, *Pongo*, *Gorilla*, *Pan*, and *Homo*. The shapes of 16 a priori defined modules were quantified using interlandmark distances. The VRel statistic was used to measure magnitudes of morphological integration for each genus in all modules. A Z-score transformation (ZVRel) was used to determine whether genera exhibited significantly different magnitudes of integration within each module. Predictions 1 and 2 were supported in 12 of 16 modules. Cercopithecoids were consistently significantly more integrated than non-human hominoids ($\alpha = 0.0011$), while *Homo* exhibited a unique pattern. Prediction 3 was supported in the proximal and distal femur, as these play an important role in weight bearing. Our results suggest that magnitudes of integration in the hind limb have evolved in concert with major locomotor transitions in the hominoid and cercopithecoid lineages. This analysis provides valuable context for future research on fossil catarrhine locomotor evolution.

SATURDAY • Palaeoanthropological Society of Canada (PASC) 2

Chairs: Mark Collard and Michelle Drapeau

2:00

The influence of hybridization on skeletal variation in Canis: A model for hominin evolution

Lavania Nagendran 1; Christopher Kiru 1; Raman Gill 1; Mark A. Conaway 1,2; Zdjelar Natasa 1; Lauren Schroeder 1,3

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Admixture among hominins has left a lasting imprint on the human genome, yet its morphological signature remains poorly understood. Hybridization can generate phenotypic variation through recombination of parental genomes, producing intermediate or transgressive traits, heterosis, dysgenesis, and trait anomalies. This variation may reflect shifts in underlying trait covariance, offering a potential window into the effects of admixture in the hominin fossil record. Here, we use the eastern coyote, a canid population shaped by historical introgression among multiple canid taxa, as a model system for studying hybridization's morphological consequences. Three-dimensional landmark data were collected from coyotes, wolves, and eastern coyotes across four skeletal elements: cranium (n = 255), mandible (n = 246), femur (n = 129), and os coxae (n = 120). Shape was assessed using generalized Procrustes analysis and principal component analyses,

while size was compared using centroid size. Procrustes-based linear models assessed allometry. Since significant allometric relationships were found, both form and shape were analyzed. Morphological integration was quantified via relative eigenvalue variance, and evolvability and flexibility were estimated from bootstrapped covariance matrices. Eastern coyotes generally exhibited intermediate morphology (size and shape) but resembled coyotes more closely than wolves. They showed differences in allometry relative to parental groups for the cranium ($p \leq 0.025$). Form integration was similar between eastern coyotes and coyotes ($p > 0.05$) but significantly lower than wolves for all elements ($p \leq 0.041$) except the os coxae ($p = 0.067$). No significant differences were found for shape integration, and evolvability and flexibility overlapped with one or both parental groups. Despite historical introgression, eastern coyotes largely retained patterns within the parental range, with greater differences observed in the cranium and more conserved patterns in the os coxae. Overall, admixture appears to influence shape and size, while patterns of trait covariance appear to be maintained across groups.

2:15

Dental Morphological Signatures of Admixture in Pleistocene *Homo*: Metric and Crown-Outline Approaches to Neanderthal and *Homo sapiens* Variation*

Ienas Abdulaziz 1; Shara Bailey 2; Bence Viola 1; Lauren Schroeder 1

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Ancient DNA demonstrates repeated admixture among Late Pleistocene *Homo* populations, yet whether this population history produced recognizable patterns in dental morphology remains unclear. This study tests whether dental crown dimensions and maxillary first-molar (M1) outline shape preserve phenotypic patterns predicted from comparative studies of hybridization, including overlap, intermediacy, increased dispersion, and transgression. Mesiodistal (MD) and buccolingual (BL) crown dimensions were compiled for 623 Neanderthal, African anatomically modern human (AAMH), fossil *Homo sapiens*, and admixture-candidate (Admix-C) individuals. Twelve dental subsets were evaluated using principal component analysis (PCA) and linear discriminant analysis with leave-one-out cross-validation. Maxillary M1 crown-outline shape was examined in 101 specimens using elliptical Fourier analysis (EFA), PCA, centroid distances, and linear discriminant analysis trained on Neanderthal and AAMH reference samples to assess the morphological affinities of Early–Middle Pleistocene *Homo* and fossil *H. sapiens* specimens. Across metric analyses, Admix-C individuals did not form a stable or consistently separable group, instead showing extensive overlap with AAMH and fossil *H. sapiens*, partial extension toward Neanderthal-associated morphospace, and occasional transgressive positions. Transgression was localized to particular individuals and dental regions rather than expressed across the dentition. Group structure also varied by tooth class, arch, and measurement type; anterior and BL-containing analyses generally preserved stronger Neanderthal–AAMH differentiation than several molar and MD-only analyses. DNA-confirmed admixed individuals showed no consistent relationship between genome-wide Neanderthal ancestry and dental metric position. In the EFA analysis, Neanderthals had the most distinctive mean M1 outline, yet specimen-level analyses showed substantial overlap and mixed affinities; among Early–Middle Pleistocene *Homo* and fossil *H. sapiens* specimens, 45.5% were closer to the Neanderthal centroid and 54.5% to the AAMH centroid. These results indicate that dental morphology preserves uneven, trait-specific signals relevant to population interaction, but no singular diagnostic signature of admixture.

2:30

How Big Teeth Find Space in Small Faces: Lessons from White Handed Gibbons (*Hylobates lar*)

Julia C. Boughner 1; Guradesh Hans 1; Amalya Babayan 1; Zachary Cofran 2; Connor G. Fogo 3

1 University of Saskatchewan, Department of Anatomy, Physiology, & Pharmacology; 2 Vassar College, Anthropology Department; 3 University of Wisconsin-Madison, Department of Anthropology

While great apes are humanity's closest living primate relatives, gibbons and other "lesser" apes hold distinct insights about our collective evolution and development. Studying how space in gibbons' flat faces is made for their big anterior teeth will help clarify the evolutionary-developmental (evo-devo) integration of primate dentitions within jaw skeletons. We analyzed volumes of developing permanent teeth and crypts, and associated variation in crypt/tooth position along the eruption path. We hypothesized no 'extra' space in the crypts of large mineralizing canine and incisor crowns, and predicted comparable, homologous patterns for postcanine teeth (premolars, molars). We sampled wild-shot *Hylobates lar* carpenteri from the Asiatic Primate Expedition (1937–38) collection. Sex was documented; age was unknown. Of these $n=29$ gibbon crania (18 females, 11 males), only a subset ($n=6$) included the mandible. Tooth formation was scored using a 12-stage system. Based on permanent tooth emergence and basioccipital fusion, individuals were allocated among four age groups (infants, $n=9$; juveniles younger, $n=10$ and older, $n=6$; subadults, $n=4$). Skulls were scanned on an Xtek HMXST225 microCT scanner (Nikon Metrology, Harvard University), from 115–135 uA and either 80–90 kV (no filter) or 135–190 kV (0.25 mm Cu filter), with a resolution of 50–85 microns. Using Amira software (Thermo Fisher Scientific) we visually inspected 3D volumes and 2D slices, and segmented/quantified pre-emergence 3D crypt and tooth volumes. Regardless of tooth class, dentition, sex, size, or stage, crypt volumes exceeded those of corresponding mineralizing crowns. Also, canines and incisors 'made' space for root extension by emerging out of their crypts towards occlusion, erupting posterior to their deciduous precursors. Conversely, erupting premolars barreled directly through the paths of overlying deciduous teeth; molars faced no such barriers. By class, gibbon teeth solve for space differently not during crown mineralization but during eruption and emergence.

2:45

A comparison of incisor crown resistance to bending and shear forces in extant anthropoid superfamilies and its implications for fossil anthropoid dietary inference

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1 Education Program in Anatomy, Faculty of Health Sciences, McMaster University; 2 Department of Pathology and Molecular Medicine, McMaster University; 3 Centre for Exploration of the Deep Human Journey; University of the Witwatersrand; 4 Indiana University School of Medicine

Among primates, anthropoids have proportionately larger incisor crowns relative to their post-canine dentition. Incisors primarily function in the pre-processing of food items prior to ingestion and are the first point of contact with foods. Despite their outsized role in food preparation and procurement, incisor crown morphology and function remain less well studied than post-canine dental morphology and function, however prior research demonstrates that incisor size is primarily ecologically driven (i.e. folivores have smaller incisors than do frugivores). Similarly, incisor crown morphology (i.e. greater cervico-incisal and mesiodistal curvature) is positively correlated with an increased reliance on frugivory in hominoids and ceboids. More pronounced incisor crown curvature functions to increase total crown area and, by extension, the crown's resistance to normal bending stresses (i.e. compressive and tensile forces) and non-normal forces (i.e. shear). The present

study builds on prior research by examining bending and shear resistance variation across a maxillary incisor study sample (n=481) including 33 primate genera representing all extant anthropoid sub-families (Hominoidea, Cercopithecoidea, Ceboidea). Results suggest variation in resistance to bending and shear forces is relatively uniform within individual anthropoid sub-families (i.e. higher bending and shear resistance tracks increased frugivory) but cercopithecoids have lower bending and shear resistance relative to hominoids and ceboids. Bending and shearing resistance are elevated for the maxillary central incisor (I1) relative to the maxillary lateral incisor (I2). Lower bending and shear resistance in cercopithecoids can be, in part, attributed to unique dental morphology (i.e. narrow incisor crowns with reduced lingual cingula, bilophodonty, thinner enamel). A more detailed understanding of how anthropoids resist the mechanical loading associated with diet offers new and valuable insights into how diet influences incisor morphology and has the potential to improve the accuracy of dietary inference in fossil primates.

SATURDAY • Palaeoanthropological Society of Canada (PASC) 3

Chairs: Mark Collard and Michelle Drapeau

3:30

Recent research on early traces of fire at Wonderwerk Cave, South Africa

Michael Chazan 1,2; Matthew Shaw 1; Candice Shaw 1

1 University of Toronto, Department of Earth Sciences; 2 University of Toronto, Department of Anthropology

Over the past fifteen years our research at Wonderwerk Cave, located in the Northern Cape Province of South Africa, has uncovered the earliest known evidence of fire in association with human occupation. This presentation presents an overview of past research as well as new evidence from renewed excavation at the site. We argue that what we find at Wonderwerk Cave demonstrates active engagement with fire by *Homo erectus* but that the modality of this engagement was distinct from what is found in subsequent periods. We argue that the currently available data is consistent with the gradual integration of fire into hominin adaptation.

3:30

Preliminary results from the 2025 and 2026 excavations at the Mousterian site of Arma delle Manie (Finale Ligure, Italy)

Julien Riel-Salvatore 1; Matteo Romandini 2; Francesco Fontani; Amélie Vallerand 1; Félicie Doyer-Brodeur 1; Ivano Rellini 3; Stefano Benazzi 2; Francesco Berna 4,5; Omry Barzilai 6; Fabio Negrino 7

1 Université de Montréal, Département d'anthropologie; 2 University of Bologna, Department of Cultural Heritage, Laboratory of Osteoarchaeology and Paleoanthropology (BONES Lab); 3 University of Genoa, Department of Earth, Environmental and Life Sciences (DISTAV); 4 Simon Fraser University, Department of Archaeology; 5 University of Siena, Department of Physical sciences, Earth and environment; 6 University of Haifa, Department of Archaeology; 7 University of Genoa, Department of Antiquities, Philosophy, History (DAFIST)

We present preliminary results of the 2025 and 2026 excavations of the Mousterian deposits at Arma delle Manie, a large cave site located near Finale Ligure, in Liguria (Italy). The site was originally excavated over a ca. 20-year period from the 1960s to 1980s, yielding an abundant lithic industry and numerous well preserved faunal remains, but it has suffered from only partial publication and analysis, in spite of having yielded dates that suggested it could document the last moments of that species' history in the region and Europe more broadly. Here, we present the objectives of this new project, the methods employed as part of it and some preliminary observations about stratigraphy, spatial organization, fluctuation in

occupation intensity and the innovative sampling methods used to document the lifeways of Neanderthals and paleoenvironment prior to the arrival of modern humans in the region. Our preliminary results confirm the presence of several well-preserved layers yielding diverse lithic and faunal remains, in addition to the presence of potential structures. We also highlight ongoing efforts at reconciling archival data with new field observations as well as promising avenues for documenting Neanderthal biology at the end of their evolutionary history.

3:45

The Scale of Destinies: Cultural and life history drivers of the evolution of human skeletal gracilization

Jay T. Stock 1; Tim Ryan 2; Laura van Holstein 3,4,5; Jaap P.P. Saers 3,4,5

1 Department of Anthropology, University of Western Ontario, Canada; 2 Department of Anthropology, Pennsylvania State University, USA; 3 Department of Palaeoanthropology, University of Tuebingen; 4 Naturalis Biodiversity Center, Leiden, the Netherlands; 5 Department of Anthropology, Emory University, USA

The skeleton of *Homo sapiens* is unusually gracile compared to other species including non-human primates. Since skeletal robusticity is known to be influenced by activity during the lifespan, a considerable body of research has investigated the relationship between skeletal morphology and habitual activity in the fossil records. While this work has provided insight into activity patterns throughout human evolution, the full extent of human skeletal gracilization cannot be explained by reductions in mobility or other lifestyle shifts alone. Research on living human athletes demonstrates that lifestyle factors during growth and development have a greater influence on adult skeletal robusticity than patterns of adult behaviour. Our recent research (Saers et al., 2023) illustrates, however, that there is an even greater impact of early neuro-muscular development within the first year of life on later life skeletal quantity among humans and non-human primates. This suggests that evolved patterns of life history variation among humans and non-human primates explains variation in bone quantity between extant species. This observation suggests that skeletal gracilization within the hominin lineage may be integrated with broader patterns of neural and cultural evolution rather than individual level variation in activity. Recent research on hominin brain size evolution illustrates that diversity in neural evolution is integrated with both climatic variation and material culture (Will et al., 2021, 2026). An integrative evolutionary view of human bone quantity suggests that the gracile skeleton of *Homo sapiens* is best viewed as the result of cultural drivers of life history evolution, including delayed development and early life socio-cultural learning, which are exacerbated by cultural influences on bone quantity within the lifespan at both the population and individual level.

4:00

Acquired spinal conditions in evolutionary perspective: A century-old hypothesis revisited

Mark Collard 1; Kimberly Anne Plomp 2; Dean Anthony Arcega 3

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Identifying the causes of back pain is an important endeavour. Surveys, systematic reviews, and medical claims indicate that back pain is one of the greatest contributors to disability, with as many as two-thirds of people experiencing it at some point in their lives. Despite this, the causes of back pain remain incompletely understood. Further research is therefore needed to identify the conditions that contribute to its development. Here, we show how adopting an evolutionary perspective can help with this task. In 1923, the famous Scottish anatomist and anthropologist Sir Arthur

Keith proposed that many common back problems are due to the stresses caused by our lineage's evolutionarily novel form of locomotion, obligate bipedalism. Over the last ten or so years, we have developed an updated version of Keith's hypothesis with a focus on acquired spinal conditions. We call this hypothesis the Evolutionary Shape Hypothesis (ESH). The ESH contends that individuals differ in their propensity to develop different acquired spinal conditions because of differences in vertebral shape that relate to the evolutionary history of our species. We will begin by outlining the ESH. Then, we will review the results of several studies in which we have analysed museum specimens with geometric morphometric techniques. These studies have focused on three important acquired spinal conditions: vertical intervertebral disc herniation, spondylolysis, and spinal osteoarthritis. Collectively, the results not only suggest that the three conditions are associated with vertebral shape but also suggest that the pathology-prone vertebral shapes can be understood in terms of the shift from quadrupedalism to bipedalism in the course of human evolution. Subsequently, we will explain how the ESH accounts for the three sets of results. We will conclude by outlining some possible directions for future research.

POSTER ABSTRACTS/RÉSUMÉS

Abstracts are arranged by conference session and presentation time. Résumés sont classés par session de conférence et heures.

THURSDAY • Poster Session 1 • 8:30–1:00

Diet, mobility & biogeochemistry

Poster 1

Reconstructing the Geographic Origins of Individuals Buried in the Saint-Louis Cemetery in Québec Using Stable Isotopes

Bari, Dawn; Dr. Eric Guiry, Stéphane Noël, Véronique Miclette, Dr. Paul Szpak

1 McMaster University, Anthropology Department; 2 SYSTRA Canada; 3 Consultant Archaeologist; 4 Trent University, Anthropology Department

Strontium and sulfur isotope analyses were performed on individuals buried at the Saint-Louis Cemetery in Québec City to reconstruct their probable geographic origins and investigate the life histories of those interred during the 1832 cholera epidemic. Historical records indicate that many immigrants arriving in Québec City during this period originated from the British Isles, especially Ireland, as people fled famine, poverty, and disease in Europe making Ireland the primary region of comparison for geographic origin assessments. Among the 37 individuals excavated from the Saint-Louis Cemetery, two adults and 35 children under 10 years old were identified. Strontium isotope analyses of dental enamel ($^{87}\text{Sr}/^{86}\text{Sr}$ enamel) revealed that most individuals produced $^{87}\text{Sr}/^{86}\text{Sr}$ enamel values consistent with Ireland. Sulfur isotope analysis of bone ($\delta^{34}\text{S}$ bone collagen) and dentine ($\delta^{34}\text{S}$ dentine) suggests that some individuals experienced small scale movement throughout life and changing mobility patterns during childhood, with lower mobility during periods of breastfeeding and slightly increased movement following weaning. Burial orientation, spatial organization, and the gradual increase in personal items from west to east across the cemetery suggest changes in mortuary practices throughout and after the cholera epidemic, while evidence of multiple pathological conditions indicates that poor health may have contributed to elevated childhood mortality. These findings provide new insights into the mobility patterns and potential origins of the individuals buried at the Saint-Louis Cemetery while demonstrating how the integration of isotopic, osteological, and historical evidence can be used to reconstruct life histories.

Poster 2

STABLE ISOTOPE (C, N, S) ANALYSIS REVEALS SEAL-DOMINATED DIET FOR NORTH SLOPE BIRNIRK ANCESTORS

Rachel Dickenson 1; Lauren EY Norman 2; Paul Szpak 1

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Despite extensive material culture and over 500 years of persistence in and around Northern Alaska, the Birnirk culture is not well understood. Analysis of their material culture has allowed us an understanding of their technology, architecture and design styles, and mortuary practices; however, specifics of their diet and subsistence strategy have remained somewhat unclear beyond a general agreement that marine mammals were key. We reconstructed the Birnirk diet using stable carbon ($\delta^{13}\text{C}$), nitrogen ($\delta^{15}\text{N}$), and sulfur ($\delta^{34}\text{S}$) isotope analysis of bone and tooth dentine collagen from human remains from four Birnirk sites (Kugok, Kugusugaruk, Nunavuk, and Pigniq) in the North Slope region of Alaska. All individuals from all four sites had marine-based diets, dominated by ringed and bearded seals, with no isotopically identifiable differences between or within sites, nor throughout the lifetime of any individual. Our results are consistent with the faunal

assemblages at these sites, where ringed and bearded seals are two of the most abundant species, as well as with ethnographic research of other coastal Inuit cultures with a well-known reliance upon seals. Additionally, behavioural ecology of these marine mammals would make hunting bearded and ringed seals the most practical choice of subsistence strategy for the Birnirk.

Poster 3

Sudanese Nubian Dental Microwear: Investigating differences in dental microwear across temporal groups at Wadi Halfa in Sudanese Nubia

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Throughout the approximately 10,000-year history of Wadi Halfa in the Northern State of Sudan and historically part of Sudanese Nubia, the diets and food preparation techniques of its inhabitants have been largely undocumented. In the area of Wadi Halfa, there were three temporal groups within the burial locations excavated in the 1960s, the Meroitic group (350 BCE to 350 CE), the X-group (350 CE to 550 CE), and the Christian group (550 CE to 1400 CE). These groups varied socially and culturally resulting in differing environmental and social impacts on agriculture and agricultural methods, and subsequently health. To better understand how diet and/or food preparation techniques changed between each temporal group, this research conducted an analysis of dental buccal microwear. Thirty teeth, ten from each temporal group were imaged using light microscopy, and each tooth was assessed for microwear. Results indicate that the Meroitic group had the highest occurrence of microwear of the three groups, and the X-group had the lowest occurrence. Dental macro-wear analysis suggests that the differences between groups are not related to the age-at-death of these individuals. These results indicate that there is a difference in diet and/or food preparation methods between each group, which may be attributed to changes in the crops grown and consumed based on staple crops, methods of agriculture, production demands, and/or environmental trends. The results indicate that there is, in fact, a difference in dental microwear between the three Sudanese Nubian temporal groups at Wadi Halfa, which provides further insight into an area that is still largely undocumented and unknown.

Poster 4

Dietary analysis of bone collagen and structural carbonate in four pre-modern Dutch communities using stable carbon and nitrogen isotopes

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Between the 17th and 19th centuries, the Netherlands experienced significant socio-economic change, rapid population growth, urban expansion, and flourishing international commerce. The intensification of international trade reshaped foodways, contributing to increasingly diverse diets. These changes also transformed women's roles within the local economies, as women were the centre of the home and industrious in craft and trade. Such shifts are particularly relevant to understanding women's lives, which are often less well-documented in historical sources. These changes provide important context for examining regional variation in dietary practices among women, including the relative contribution of different protein sources and staple foods in their diet. Stable isotope analysis of bone collagen and structural

carbonate can be used to investigate the dietary contribution of protein, carbohydrate, and lipid sources. This study uses paired isotopic analyses of archaeological bone collagen ($\delta^{13}\text{C}_{\text{col}}$ and $\delta^{15}\text{N}$) and structural carbonate ($\delta^{13}\text{C}_{\text{carb}}$) from 31 young adult females across four 17th-19th century communities (Alkmaar: $n=7$; Arnhem: $n=10$; Eindhoven: $n=4$; Zwolle: $n=10$). Arnhem $\delta^{15}\text{N}$ ($+12.6 \pm 0.70$ ‰) is significantly lower ($F=18.33$, $p<0.0001$) than Alkmaar and Zwolle $\delta^{15}\text{N}$ ($+14.3 \pm 0.24$ ‰ and $+14.3 \pm 0.60$ ‰, respectively); Eindhoven $\delta^{15}\text{N}$ ($+13.4 \pm 0.62$ ‰) falls between Arnhem and the other sites. Arnhem and Eindhoven also show higher $\delta^{13}\text{C}_{\text{carb}}$ (-14.5 ± 0.68 ‰ and -14.2 ± 0.23 ‰, respectively) than Alkmaar and Zwolle (-16.3 ± 0.14 ‰ and -15.6 ± 0.72 ‰, respectively); $F=9.1$, $p=0.0005$). There were no significant differences in $\delta^{13}\text{C}_{\text{col}}$ across sites ($\chi^2=2.2$, $p=0.53$). These data suggest diet may have differed with ease of access to imported food and coastal resources (e.g., fish), or according to socioeconomic status (SES), as Arnhem was of lower SES than Alkmaar and Zwolle (middle-high SES). This research highlights dietary variation in pre-modern Netherlands and improves our understanding of the lifeways of young women during an important transitional period in history.

Poster 5

Investigating the Impact of Italian Incastellamento on Human Diets: San Giuliano (Lazio, 11th–13th Centuries CE) as a Case Study*

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The turn of the first millennium CE was a tumultuous time in Central Italy. Rome's northern hinterland stood at the confluence of the burgeoning Papal States' and Holy Roman Empire's spheres of influence. In that context, the rural landscape was going through profound changes, as the population was relocating from dispersed and open villages to centralized fortified settlements on defensible hilltops. This process, called "incastellamento", was at its zenith around the 11th century. Although it has been studied for more than 50 years, the exact timeline and socio-economic effects of incastellamento are still the object of scholarly debate. The site of San Giuliano (11th-13th centuries), located in modern-day Lazio, Central Italy, provides invaluable insights into the living conditions of the people who experienced that transition. Led since 2016 by Baylor University, excavations at San Giuliano have uncovered a fortified manor, a chapel, a crypt, a faunal assemblage, and numerous human burials (MNI = 110 as of 2025). This study presents a preliminary subset ($n=18$) of ^{14}C dating results, which suggest that the occupation at San Giuliano was short-lived (~150 years). It also reports on bulk $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for 59 human and 24 faunal samples. These data indicate that the diet at San Giuliano was largely C3-grain based (e.g., wheat and barley), and low in animal proteins. Notably, these trends are even more marked than at comparable medieval Italian sites with previously published isotopic data. Although the diet at San Giuliano appears to have been homogeneous, several outliers show isotope values suggesting the consumption of freshwater resources, which will be discussed in the light of single amino acid $\delta^{13}\text{C}$ data. Overall, this project draws on San Giuliano as a case study of how settlement pattern changes can affect the dietary habits and living outcomes of archaeological populations.

Poster 6

Stable carbon and nitrogen isotope investigation of infant feeding practices in pre-modern Alkmaar, the Netherlands

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Infant feeding practices are important to study in historical populations because of their significance for understanding child-rearing practices and patterns of infant health and mortality. Pre-modern Netherlands had high regional variation in infant mortality rates suggesting that infant feeding practices may have differed considerably across, and potentially within, communities. Stable isotope analysis provides a means of investigating these practices, as breast milk has higher stable carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) isotope compositions than alternative sources of infant nutrition. This study reports $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ for incremental dentine collagen samples of deciduous teeth and permanent first molars to reconstruct infant feeding practices among 14 non-adult individuals (<10 years) from 18th- to 19th-century Alkmaar, the Netherlands, interred at the Great Church of St. Laurens. Non-adult data were compared to bone collagen isotope data from 7 young adult females from the same site. Few individuals (29%, $n = 4$) have clear evidence of breastfeeding, and neither $\delta^{13}\text{C}$ nor $\delta^{15}\text{N}$ from dentine formed during the first year after birth (mean $\delta^{13}\text{C} = -19.6$ ‰; mean $\delta^{15}\text{N} = +14.5$ ‰) differ significantly from the adult female values (mean $\delta^{13}\text{C} = -19.9$ ‰, $t = 1.27$, $p = 0.2119$; mean $\delta^{15}\text{N} = +14.3$ ‰, $t = 0.86$, $p = 0.3924$). This suggests potentially short or absent maternal breastfeeding and the occurrence of alternative practices, such as artificial feeding with alternative foods and/or wet-nursing. These results are consistent with historical sources that suggest various feeding practices were prevalent in the Netherlands. This study provides an important first step toward identifying intra-population variation, with future research comparing breastfeeding occurrence, duration, and weaning patterns both within and between pre-modern Dutch populations. Such comparisons will help clarify how infant feeding practices varied in relation to broader demographic, sociocultural, and economic changes, including the high and regionally variable infant mortality observed during this period.

Poster 7

Stable Isotope Dietary Reconstruction Using $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ at Bir el Jebbana, Carthage, Tunisia During the Late Roman and Vandalic Periods*

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We present a collagen stable carbon and nitrogen isotope dietary reconstruction at Carthage (in modern day Tunis), Tunisia. An analysis of general diet was undertaken on a population buried in and around the bathhouse of Bir el Jebbana on the northwestern outskirts of Roman Carthage, near the amphitheatre. There are two distinct burial areas at the site, the bathhouse itself dating to the Late Roman Period (3rd-4th century CE) and the cemetery dating to the Vandalic period at Carthage (5th-6th century CE). 36 individuals from Bir el Jebbana were sampled for stable isotope analysis, of which 33 produced valid results. These results were compared to stable isotope samples from a variety of faunal remains ($n=20$) sampled from the Vandalic period Theodosian Wall cemetery at Carthage. Mean $\pm$ SD $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values at Bir el Jebbana were -18.8 ± 0.4 ‰ and 10.8 ± 1.2 ‰ respectively. This indicates a diet consisting predominantly of C3 terrestrial plants with small amounts of supplementary terrestrial animal protein during

both the Late Roman and Vandal periods at Carthage. Diet changes are slight but statistically significant between the Late Roman and Vandalic period. We suggest this could be an indication of possible marine animal protein exploitation during the Late Roman period, such as consumption of garum. This consumption dissipated during the Vandal conquest of North Africa in the 5th century. A more significant difference in diet was detected between the population at Carthage and that of Leptiminus (~180km south), implying that diet varied more by location than period.

Poster 8

Dentine as a Record of Early-Life Nutrition: Stable Isotope Analysis of Carbon and Nitrogen Using Micropunch Sampling*

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Understanding infant feeding practices is important for studying health in past populations. However, it can be difficult to investigate childhood dietary patterns in an archaeological context when only adult remains are recovered. This research explores whether early-life nutrition can be reconstructed from adult dentition using stable isotope analysis of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ in incremental dentine tissues. The methods compare two different sampling techniques to assess temporal resolution: micropunching and razor slicing. Three first permanent molars from three individuals from Puruchuco-Huaquerones were sampled. The results of this study suggest that dentine records early-life dietary patterns. High $\delta^{15}\text{N}$ values reflect breastfeeding, followed by a decrease during weaning. Fluctuations in $\delta^{13}\text{C}$ suggest that the supplementary foods consumed during weaning differ from the adult diet. Comparisons with later-forming tissues indicate two distinct dietary patterns. Both sampling methods show similar trends, but micropunching provides higher temporal resolution, while razor slicing allows for a larger sample size.

Poster 9

Weaning in Early Bronze Age Jordan: What Sr/Ca and Ba/Ca Trace Element Ratios in Permanent Molars from Wadi Faynan 100 Reveal

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Weaning is a process where non-breast-milk foods are introduced in the diet of the offspring until the end of suckling. Learning about breastfeeding and weaning practices (BWPs) of ancient humans is a significant research area in anthropology, as BWPs directly influence infant mortality, cognitive functions, and the overall health of a population. Weaning has yet to be studied at Wadi Faynan 100 (WF100) an Early Bronze Age IB (3,300-3,000 BCE) site in Jordan, or at any other ancient site in the Levant. The aim of this research is to determine the age of weaning at WF100 by analyzing changes in strontium (Sr)/calcium (Ca) and barium (Ba)/Ca trace element ratios in the enamel of 17 permanent lower left first molars. The use of Sr/Ca and Ba/Ca ratios from enamel is ideal for this examination because Sr and Ba levels vary in a distinct manner during weaning and provide an accurate weaning history. Both trace element ratios follow a predictable pattern throughout nursing and weaning, in which Sr/Ca ratios decrease during nursing, due to a low amount of Sr in breastmilk, and then increase during weaning with the introduction of other non-milk foods; Ba/Ca levels increase during breastfeeding and then start to decrease during weaning due to the introduction of foods lower in Ba. The variation of trace element ratios is here studied using laser-ablation inductively coupled plasma-mass spectrometry (LA-ICP-MS), taking microspatial samples across incrementally-formed growth bands in enamel. Variations of Sr/Ca and Ba/Ca trace element ratios were observed among the WF100 individuals, signifying dietary changes indicative of weaning. This research provides the first insights into weaning practices at WF100 yielding new perspectives on infant feeding

practices and childhood development at the site and more broadly within Early Bronze Age Levant.

Poster 10

Lead exposure in a British Royal Navy population from English Harbour, Antigua: Multi-tissue analysis and high-resolution element mapping

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In the colonial era British Royal Navy, sailors and dockyard personnel were regularly exposed to lead through food and drink, occupational sources, and medicaments. Chronic lead poisoning compounded with infectious disease epidemics may have contributed to the West Indies' storied reputation for high morbidity and mortality among naval personnel. This paper builds on our previous work investigating lead exposure in a Royal Navy Hospital Cemetery (RNHC) in Antigua (AD 1763–1834) by comparing individual enamel and bone concentrations and using an element mapping approach integrating synchrotron radiation X-ray fluorescence imaging (SR-XFI) with laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS). Variability in concentration among bone-tooth pairs highlights differences in developmental vs. later life lead exposure among, reflecting the diverse backgrounds and histories of the interred individuals. Exploratory LA-ICP-MS analysis of three bone samples scanned with SR-XFI helps quantify lead localized to discrete bone microstructures, highlighting substantial variability in exposure occurring during cortical bone remodeling and mineralization. Collectively, these data provide a more nuanced understanding of temporal shifts in lead exposure among this population.

Poster 11

The People of Sa Mitza Salida: A Case Study on Sardinian mobility during the Roman Period through stable isotope analysis of $\delta^{34}\text{S}$

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Stable isotope analysis plays an integral role in understanding the life histories of humans and animals in the past. $\delta^{34}\text{S}$ is a valuable yet underrepresented isotope in archaeological studies, enabling researchers to explore invisible aspects of individuals' lives, particularly mobility. Due to limited fractionation, an individual's $\delta^{34}\text{S}$ can be connected back to the landscape with similar $\delta^{34}\text{S}$ values. In this paper, we investigate human mobility on the island of Sardinia spanning the 1st to 5th centuries AD. To do this, we will analyze $\delta^{34}\text{S}$ from the bone collagen of 51 individuals, excavated from the Imperial-Period necropolis Sa Mitza Salida, situated in the municipality of Masullas, and compare it against the $\delta^{34}\text{S}$ values of

modern plant samples collected across the central portion of the island. This research allows for the preliminary assessment of whether individuals were local or non-local to this region. Unlike strontium isotope analysis of tooth enamel, which only allows for the assessment of an individual's mobility during childhood, sulfur analysis of bone collagen reflects mobility occurring later in life, enabling a better understanding of how people were moving across the landscape over the course of their life. This research provides valuable insight into the life stories of the individual humans buried at Sa Mitza Salida following, across five centuries, a consistently codified funerary practice that presents all individuals in uniform ways, hiding social differences. Therefore, this study complements ongoing research into the lives of Sardinian people during the Roman period.

Bioarchaeology and paleopathology

Poster 12

Care, Compassion, and Christ: Living with Tuberculosis at Ghazali, a Medieval Nubian Monastery*

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In the Wadi Abu Dom area of the Bayuda Desert in Sudan, lies Ghazali, a medieval Nubian monastery occupied between ca. 680–1275 CE. Ghazali is well preserved, with excavations revealing areas of everyday activities of the monastic community as well as four cemeteries that include an inferred monastic burial ground (Cemetery 2). Among the individuals excavated to date, several instances of evident pathological alteration have come to light, bringing forth questions about potential care and the nature of the Ghazali community. The Bioarchaeology of Care model and associated Index of Care methodology developed by Loma Tilley focusses on life course assessments utilising four sequential stages of analysis to infer aspects of identity and care in relation to perceived disability. Adopting this model, an assessment of a proposed case of tuberculosis identified in the skeletonised remains of individual Ghz-2-033, including pathological alteration of several thoracolumbar vertebrae and intervertebral disc space destruction, was conducted. Through the four stages of the Bioarchaeology of Care model, this presentation explores the implications of living with tuberculosis in medieval Nubia, and the likelihood of support and/or accommodation from the broader Ghazali monastic community. This presentation also brings forth questions around the potential nature of healthcare provision within Nubian monastic communities, an aspect of monasticism well established by the ca. 4th c. CE in neighbouring Egypt and Byzantium, but currently less clearly understood for contexts in Nubia. Ghz-2-033 would have been at risk for chronic pain, neurological damage, and paresis, as are consistent with vertebral tuberculosis; therefore, Ghz-2-033 was likely supported or accommodated by their community in domains such as mobility, economic contribution, and/or domestic labour. This conclusion is supported by Ghz-2-033's age of death (~40–45) falling within the norm of the population (35–50) and a lack of severe comorbidities.

Poster 13

An Amalgam Assault? A Case Study Analysis of Dental Amalgam Composition and Toxicity Risk from 18th-19th Century Halifax, NS

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While dental fillings are commonplace in modern dentistry to treat carious lesions, their presence in the bioarchaeological record can

be elusive depending on temporal period and geographic location. Most North American examples of dental fillings are found within colonial populations from the early 19th century onwards once amalgam fillings were introduced to the Americas. This early amalgam was often comprised of silver and liquid mercury and had poor tooth adhesion, lead to permanent tooth damage, and posed long term toxicity risks. This case study focuses on an 18th-19th century example of dental fillings from Halifax, NS. This adult individual (21+ years, undetermined sex) recovered from the Grafton Street Burial Ground had three fillings present, one gold filling on the right first mandibular molar and two large amalgam fillings, one on the left first maxillary premolar and one on the left second maxillary premolar. Radiographic analysis of both premolars showed complete tooth crown and pulp cavity destruction by these large amalgam fillings. Laser ablation ICP-MS of the amalgam confirmed high concentrations of 202Hg (mercury) and 107Ag (silver). Further, the Hg concentration in femoral trabecular bone from this individual was 56.0 $\mu\text{g g}^{-1}$. By comparison, Hg concentrations in non-exposed individuals are typically below 0.30 $\mu\text{g g}^{-1}$. These results would suggest that this individual may have been poisoned from these two large amalgam fillings. Ground contamination, medical treatments, and occupational exposure were also considered as possible catalysts for the elevated Hg concentrations observed. Research permission was granted by the St. Michael's Presbyterian Church, the stewards of the Grafton Street Skeletal Collection.

Poster 14

Beyond the Death Record: Paleopathological Interpretation of Auricular Pathology in a Nineteenth-Century Child from Guelph, Ontario*

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Infant and childhood health and mortality provide important insights into broader community health. Despite the prevalence of ear-related illnesses, auditory region pathology remains understudied in paleopathology due to the delicacy and intricacy of the associated structures. This study aims to improve the interpretation of auditory-region pathology by integrating individual skeletal evidence from a ~1–3-year-old child from Guelph, Ontario's original burial ground (1827–1853) with broader historical disease context. Digital microscopy and micro-CT imaging were used to examine the child's cranial elements and bilateral temporal and incus bones, with an age-matched control providing comparative data. Historical mortality records from Guelph's Woodlawn Cemetery (1854–1878) were analyzed as a proxy for the nineteenth-century disease environment. Microscopy identified a cortical depression superior to the right external auditory meatus, consistent with an inflammatory response. Micro-CT demonstrated intact, pointed scuta and tegmen tympani in both individuals. Both incudes of the study individual demonstrated external-to-internal erosion, which was absent in the control. Historical mortality data showed that children aged 1>12 years had 4.39 times the odds of a recorded infectious cause of death compared with individuals aged ≥ 12 years (OR = 4.39, 95% CI = 3.26–5.91, $p < 0.001$). The bilateral incus erosion supports a chronic inflammatory process, with otitis media considered a potential differential diagnosis. Cholesteatoma cannot be excluded, although no scutum blunting was identified. Historical records provide population-level context for infectious disease burden but contained no specifically recorded otologic illnesses. Together, these findings demonstrate the value of integrating skeletal and historical evidence when investigating disease in past populations, while highlighting the limitations of historical mortality records for individual diagnosis.

Poster 15

Injury and Lived Experience in a Yuan Dynasty (13th-14th c CE) Elite Family Cemetery

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This poster introduces Zhanglingqiu Bei, an elite family cemetery of the Yuan Dynasty (13th-14th c CE). The large scale of this cemetery and the availability of a partial burial record make it possible to consider how diet, health and other aspects of lived experience varied with social identity within one family. As an example of the work being done, I present a preliminary investigation of a pathological lesion from a female individual in the family's fourth generation. Initial macroscopic observation of this skeleton found extensive bone alteration of the proximal end of the left femur. I investigate this injury and the possible assistance and care the individual might have received, considering the remodelling of the lesion and potential changes to the remainder of the skeleton, as well as archival documentation of the social and familial context. The appearance of this femur and the left os coxae suggest a serious traumatic injury that significantly limited this individual's mobility. This would have set certain restrictions on her daily activities. While some aspects of her experience of care would have been dictated by the injury, other aspects may have been impacted by her elite status. This case study is an example of how an osteobiographical approach to the Zhanglingqiu Bei remains may provide insights into the lived experience of different family members.

Poster 16

Sant  et croissance osseuse d'enfants euroqu b cois aux 18e-19e si cles : exploration de la variation morphologique des os longs en lien avec le scorbut et le rachitisme

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L' tude des restes squelettiques d'enfants a beaucoup de potentiel en bioarch ologie pour  valuer l' tat de sant  et les conditions de vie des populations pass es. L'exploration de la variation de croissance en relation avec des maladies m taboliques osseuses (MMO) caus es par des carences nutritionnelles (scorbut et rachitisme) permet de comprendre comment les stress environnementaux ont affect  la sant . Cette  tude sur la croissance des os longs (taille, aire corticale et changements de forme) en lien avec le scorbut et le rachitisme a pour but d'explorer l'impact des carences en vitamines C et D sur la croissance de populations historiques de la Vall e du Saint-Laurent. Sur un  chantillon compos  de 34 individus immatures (0   13 ans) provenant de trois cimeti res catholiques (Saint-Antoine, Pointe-aux-Trembles, Sainte-Marie de Beauce), nous avons voulu v rifier si la pr sence de MMO avait caus  un changement au niveau de la longueur, de l' paisseur et de la forme des os longs. Sur les 34 individus, nous avons not  des cas pathologiques (66% de l' chantillon) de scorbut (n = 6), de rachitisme (n = 11) et de co-occurrence (n = 5). Les analyses statistiques n'ont r v l  aucune diff rence entre la pr sence d'une MMO (ou en co-occurrence) et la morphologie des os longs. La croissance ne serait donc pas significativement affect e par une carence en vitamine C et/ou D sur le long terme, car elle a la capacit  de rattraper son retard. Cependant, les statistiques ont r v l  des diff rences de fr quence de MMO significatives entre les sites (ex. MMO moins fr quentes   Saint-Antoine qu'  Pointe-aux-Trembles surtout en co-occurrence). Bien que la nature et la taille des  chantillons ont pu influencer les r sultats, ces derniers sugg rent des contextes socio conomiques contrast s entre la ville et la campagne, en particulier sur l' le de Montr al et ayant d favoris  la sant  des enfants   Pointe-aux-Trembles.

Poster 17

Bioarchaeological Investigation of Tuberculosis Using Computed Tomography: Case Studies from the Peruvian Central Coast

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Human mummified remains provide a distinct opportunity to reconstruct ancient health profiles on tuberculosis (TB)—a persistent infectious disease—while also examining how social, political, and environmental conditions may have shaped its long-term spread. However, the historical examination of mummy bundles often required unwrapping the human remains, which was invasive and destructive to the integrity of the bundles. This study evaluates the effectiveness of computed tomography (CT) as a non-invasive approach for investigating pathological changes associated with TB in human mummified remains. My poster proposes to present a case study comparison of two Late Horizon (A.D. 1776-1532) mummy bundles from the Central Coast of Peru. Using CT imaging, vertebral lesions consistent with TB were identified in both individuals. Subsequently, a differential diagnosis was conducted to exclude diseases that present with similar lesions and patterning for the environment. Comparing these cases demonstrates both the potential and limitations of CT for characterizing the pathological changes in human mummified remains within bioarchaeology. This study specifically aims to contribute to the reconstruction of ancient health profiles while also highlighting methodological considerations when using CT to study human mummified remains.

Poster 18

Paleopathological estimation of early-age survivorship from four British Industrial Revolution sites*

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Inferences about health may be made through the presence of lesions, which appear on the skeleton of individuals who experienced physiological stress during life. However, some health conditions do not cause lesions, and lesions require time to form, suggesting that an individual must survive adverse health conditions for some time before they appear. Therefore, lesions alone are not solid evidence of poor health and may even suggest relatively superior health when compared with others in that individual's age cohort. This study examines child health in the British Industrial Revolution through paleopathological observations of *cribra orbitalia*, *porotic hyperostosis*, periosteal new bone formation, and linear enamel hypoplasia. Observations were taken of skeletal samples of children and young adults from four locations in Britain dating to the Industrial Revolution: New Bunhill Fields (n=25), Wolverhampton (n=16), Coach Lane (n=25), and Coronation Street (n=12). The Industrial Revolution is often associated with hazards to human health, which children were not sheltered from. Childhood could even be seen as a particularly dangerous time, as the energy demands of a growing body combined with poor nutrition and greater susceptibility to disease could have a negative impact on a child's chances of survival to adulthood. Prevalence was determined for four skeletal lesion types, and Kaplan-Meier survival analyses and log-rank tests were used to determine if there exists a significant association between survivorship and presence of linear *enamel hypoplasia* or *cribra orbitalia* in an aggregate of all samples. It was found that lesion prevalence was high across samples (between 8.00% and 81.25%), but particularly in New Bunhill Fields and Wolverhampton. The Kaplan-Meier analysis and log-rank test for CO did not detect a significant association with age, however results for LEH suggest

an association between LEH and greater survivorship until adulthood ($p=0.001$).

Poster 19

Beyond Human Sacrifice: Health, Trauma, and Disease at the Western Zhou Hengshui Cemetery*

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Hengshui cemetery in southern Shanxi, China (1046–770 BCE) was associated with a small Western Zhou state named “Peng,” mentioned in several bronze inscriptions but not historical texts, making Hengshui our primary source of information on Peng. Among 1,299 individuals excavated from the cemetery, over 300 were associated with human sacrifice or retainer burial, an unusual mortuary practice in the region. Previous studies have provided information on cultural interactions and diet, but less attention has been given to health and lived experiences. Here I present initial results of a study focusing on these factors. This study examined 309 well-preserved individuals. Dental and skeletal diseases, degenerative changes, indicators of physiological stress, and trauma were recorded and analyzed. Due to poor preservation of elite tombs, neither sacrifices nor the elites they accompanied could be analyzed separately. Instead, this study focuses on the lives of commoners at Hengshui. A wide range of pathological conditions was observed. Dental diseases were common, including caries, abscesses, periodontal disease, calculus, and antemortem tooth loss. No significant sex differences were found; this and poor general dental health are consistent with previous isotopic dietary reconstructions. Most trauma was antemortem and healed, although some fractures healed with displacement. One female aged 35–44 showed evidence of possible perimortem decapitation. Other conditions included possible leprosy and primary carcinoma, and congenital patellar aplasia. When complete, this analysis will provide a more complete reconstruction of life at Hengshui beyond its unusual mortuary practices. Patterns of disease, stress, and trauma provide evidence of health, daily activities, living conditions, and individual experiences, contributing to a better understanding of commoners' everyday lives in this Western Zhou community.

Poster 20

A Quest to Recover *Rickettsia prowazekii* and Investigate Relatedness Among Irish Immigrants from a 19th Century Cemetery*

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From 1845 to 1852, Ireland experienced a catastrophic period of hardship called the 'Great Famine'. During this period, millions died from starvation or disease, or emigrated to North America or Great Britain. For those fleeing to North America, the journey was often deadly since louse-borne typhus (*Rickettsia prowazekii*) ravaged overcrowded immigrant ships and quarantine stations. The 1846–1847 outbreak at the Kingston General Hospital in Ontario claimed hundreds of lives among these vulnerable migrants. While historical records document the epidemic, much less is known about the individuals who were its victims, including their identities, stories, and familial relationships. Fifty-five individuals were excavated in 2021 by Archaeological Services Inc. and after consultation with the Irish descendent community in Kingston, tooth samples were taken from thirty-eight of these individuals for ancient DNA and stable isotope analysis. DNA was extracted and sequenced, and authenticity was assessed using established ancient DNA methods. Close biological relationships are typically estimated using the nuclear genome, which contains most of an individual's genetic

information; however, DNA preservation was insufficient to confidently assess these relationships. To investigate broader patterns of relatedness, we investigated mitochondrial DNA, a portion of the genome inherited exclusively from the mother. Because DNA preservation was poor, a targeted enrichment approach was used to increase mitochondrial DNA recovery, enabling the reconstruction of complete mitogenomes. Mitochondrial analyses identified ten distinct, broader maternal lineages among 26 individuals, demonstrating substantial diversity within the burial population. Two individuals shared the same mitochondrial haplogroup subclade (U5a1b1) and isotopic evidence linking them to the same region of Ireland, warranting further investigation. Preliminary screening also detected low levels of *R. prowazekii* DNA in multiple individuals. While mitochondrial data showed limited evidence of shared maternal ancestry, insufficient nuclear DNA prevented assessment of paternal kinship, leaving relationships among these individuals unresolved.

Poster 21

Piecing the Puzzle: Paleopathological Case Studies from a Fragmentary and Commingled Burial at Wadi Faynan 100*

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This research focused on conducting a paleopathological analysis of a large-scale fragmentary and commingled burial, conducted through gross observation of human skeletal remains and limited radiographic imaging of pathological lesions. The analyzed skeletal collection in this research comes from Wadi Faynan 100 (WF100), a complex archeological site located in southern Jordan. WF100 is composed of numerous structures from various periods of occupation; excavations in 2019 and 2023 focused on 18 charnel house burials from the Early Bronze Age IB (EB IB), dating to 3,300–3,000 BCE. All excavated charnel houses showed evidence of disturbance and looting with the recovered skeletal remains at various levels of fragmentation and taphonomic degradation, complicating the analysis of this collection. The remains from WF100 were visually assessed and the observed lesions were recorded and given short descriptions of appearance and sorted into nonexclusive categories of osteolytic and osteogenic lesions, as well as osteoarthritic changes and abnormal shape. Elements with pathological lesions were then studied as individual case studies and given probable diagnoses when possible. Due to time constraints, X-ray imaging was limited to select cases of severe pathology that necessitated further analysis. This discussion will focus on sharing the results from one of the eighteen charnel houses that utilized X-ray imaging, including an example of a butterfly vertebra with complete separation of the vertebral body, a healed boxer's fracture, and a probable non-malignant tumor. While osteobiographical information of the individuals who had these conditions is unavailable due to the nature of the burial, the information that can be understood still provides valuable insight into the health of individuals interred with the charnel house and contributes to the larger understanding of the site.

Poster 22

A Biosocial Frailty? An Intersectional Adaptation to an Index of Human Frailty*

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Throughout history people have disproportionately experienced hardships that directly affect their composite biological and social well-being, and influence their position within society. Palaeopathologists studying health and illness in past populations are well suited to explore this trend and advocate for the dismantling of institutionalized disenfranchisement. This research proposes the

coupling of intersectionality and a frailty index to achieve such a deconstruction through an adapted biosocial investigation of human health, which has the potential to illuminate the intricate variations of vulnerability and variable impacts on well-being. As a theory, intersectionality has the ability to disentangle the complexities of human variation and an imbalanced exposure to health detriments. Correspondingly, a frailty index, as a quantitative method, has the capacity to measure such disparities as they cumulate over a lifetime to increase the risk of premature death. Consequently, an adapted biosocial frailty model is proposed to orchestrate the implementation of both theory and method into one process that grants a multiscalar insight into the ostracization of past peoples. This approach sees the unique pairing of theory and method wherein theory is an active agent integrated through the methodology, rather than an ad hoc afterthought. The significance of such a model falls within its ability to appreciate the diversity of human experience while recognizing the greater processes that lead to peripheralization, and the direct or indirect repercussions on well-being. This ensures the true application of intersectionality within palaeopathology that is grounded in its original roots as a means to illuminate social injustices and institutionalized discriminations. Collectively, this research posits to de-marginalize and re-center the voices of those who have been muted by the dominant scriptures of history, providing a framework for the reclamation of equality and identity.

Poster 23

Did Children Receive Different Burials? The Mortuary Treatment of Nonadults in Pre-Hispanic Peru*

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Children play a vital role in preserving and passing on cultural and ritual practices, yet they are often overlooked in bioarchaeological research. This is true for studies in the ancient Andes as there is limited research on the regular mortuary treatment of nonadults. Addressing this gap provides an opportunity for a more nuanced understanding of these societies, particularly regarding whether children were considered less significant than adults and if, or how, they were involved in practices of ancestor veneration. This paper examines 123 fardos (mummy bundles), including 52 adults and 71 nonadults, from seven sites on the Central Coast of ancient Peru. We use non-destructive paleoradiographic imaging to visualize the contents within the bundles to analyze the preservation levels (completeness and articulation), burial type and positioning, and presence of the skull. The findings reveal that patterns of preservation and ancestor veneration differed across sites, time periods, and regions, likely reflecting broader changes in sociopolitical organization. The findings also demonstrate that adults and nonadults share similar preservation levels and general mortuary treatments within sites but, differ between sites. Finally, although burial position is strongly associated with age, the findings suggest that nonadult burials were treated with considerable care.

Poster 24

Assessing representation bias in human skeletal assemblages and its implications for the Ontario Guelph collection (1827-1853 CE)*

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Many bioarchaeological investigations are reliant on skeletal preservation so understanding the limitations of a sample before engaging in research is imperative. Multiple efforts over time to clear sites of internments and relocate individuals to new burial grounds

likely affect the assemblage representation. Examining differential preservation is important as it can tell us more about the representativeness of a sample. This study examines representation bias in the Guelph collection to determine if age-at-death is a significant predictor of skeletal preservation. The Guelph collection (n=114) is a skeletal assemblage from the Public Burial Ground used from 1827-1853 in Guelph, ON. Individuals were divided into two age categories, adults (20 + years) and subadults (neonates- 15 years old). Completeness of a skeletal element was determined by the presence of the element. Chi squared tests demonstrated significant difference between cranial and postcranial elements in adults ($\chi^2 = 30.258$, $p < 0.001$, $df=2$), and subadults ($\chi^2 = 70.672$, $p < 0.001$, $df=1$), where postcranial elements were more present than cranial elements. When partial individuals (< 50% of skeleton present) were excluded from the sample, the frequency of cranial and postcranial elements remained significant for subadults ($\chi^2 = 13.408$, $p = 0.0002506$, $df=1$). It is expected that a greater number of postcranial elements would be present in a mostly complete skeleton, yet this is not the case for the adults. These results support previous research on age biases in preservation and demonstrates subadult resilience in the Guelph collection. Future research should include the bone condition alongside completeness to better understand the taphonomic processes affecting preservation. Beyond these immediate findings, this study shows that historic skeletal collections must be examined for preservation bias before they are considered representative of a population.

Poster 25

Preliminary analysis of culturally modified human teeth from Sacsayhuamán, Cusco, Peru*

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The Inca Empire was the most extensive empire in the Americas, known for its advanced agricultural systems, monumental architecture, and brutal ruling regime. Sacsayhuamán, a large ceremonial site located in the Incan capital of Cusco, Peru, was host to many important rituals during both the pre-Inca and Inca time periods. A collection of 473 culturally modified human teeth found buried at the southern end of Sacsayhuamán have been analyzed to determine the ancestry of the individuals present. It is suspected that these were male individuals who originated in areas of South America that were conquered by the Inca, and whose teeth were pulled to be worn as necklaces by the Inca during war rituals. In this preliminary analysis, dental non-metric traits from the Arizona State University Dental Anthropology System (ASUDAS) have been graded to calculate trait frequencies, and ultimately determine the biodistance between the study sample and other populations. The populations used for comparison include individuals from 3 pre-hispanic regions of Peru, pre-hispanic Venezuela, Arizona (USA), Borneo (SE Asia), the European mediterranean region, and post-contact South Africa. The preliminary results from inputting 18 ASUDAS trait frequencies into mean measure of divergence (MMD) statistical analysis support the assumption that this sample does not represent a singular locale in Peru, but is instead likely made up of individuals from various areas in South America. The study sample shows a distinct divergence from the clustered Peruvian populations, however still conforms to the biodistance that would be expected between South American and other global populations. These findings support Incan cultural practices outlined in the Spanish chronicles, and are indicative of a large-scale cultural practice of modifying human teeth for ritualistic purposes. Future investigations will include MMD analysis with more populations, sex estimation using tooth metrics, and analysis of the modifications made to the teeth.

Poster 26

Between exclusion and belonging: a case of trauma and burial at Roman Carnuntum, Austria

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Burials that differ markedly from the expected funerary practices of a particular time, place, and population have sometimes been described as 'deviant burials' and interpreted as evidence for social exclusion, punishment, or fear of the deceased. Increasingly, scholars have emphasized that rather than 'deviance', funerary variation may instead reflect different degrees or forms of social marginality. In Roman contexts, decapitation and prone positioning are frequently reported types of atypical burial; however, less conspicuous practices such as spatial isolation or interment on the margins of cemeteries may also reflect non-conforming funerary treatment that can be better identified and understood with the integration of various lines of evidence (e.g., archaeological, palaeopathological). Here, we integrate these bioarchaeological approaches to examine an isolated burial located approximately 70 meters outside the southern civilian cemetery at Carnuntum, Austria (1st-4th century CE). This middle to older adult male individual (CA-545) was buried in a simple pit grave. He exhibited perimortem trauma to his facial bones and mandible, consistent with blunt- and sharp-force injuries, as well as a healed, depressed cranial fracture. This study explores several possible explanations for CA-545's experience, including capital punishment, gladiatorial combat/execution, and homicide, among other possibilities. The combination of extensive perimortem trauma and burial outside the limits of the southern cemetery raises the possibility of his social marginalization or exclusion in death. Despite experiencing substantial violence around the time of his death, CA-545 was nevertheless buried, albeit away from the remainder of the community; this treatment may indicate that, despite some degree of marginalization, social ties or obligations remained sufficient to facilitate his burial. This case demonstrates the value of integrating bioanthropological evidence into interpretations of non-conforming burial practices and provides insight into the complex social relationships that shaped funerary treatment in the Roman frontier province of Pannonia.

Poster 27

The Emergence of a School of Human Bioarchaeological Excavation in Quebec: Results and Reflections on an Initial Field Campaign.

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This SSHRC Knowledge Development project, in collaboration with the Parish of Sault-au-R  collet, aims to explore the application of various documentation approaches at a historic site in Montreal (the Catholic cemetery of the Church of the Visitation, 1751–1875). Innovative techniques for 3D imaging (LiDAR, photogrammetry, iPhone) and archaeogenomics of ancient soil DNA (MinION sequencing) are being tested within an educational framework. The first bioarchaeology field school in Quebec (May 2026) trained ten students in excavation and in situ documentation (archaeoethnatology) of four graves and in sampling for ancient

DNA. Despite the presence of soils disturbed by recent construction work, the results of the excavation provide a better understanding of the internal organization of the burial area, the chronology of the burials based on their stratigraphic position, and the typology of associated artifacts. In particular, this complex site is unique for the following features: the presence of multiple intersecting burial pits; and, most notably, soils disturbed by the cemetery that contain material remains attesting to an earlier occupation of this area associated with Fort Lorette (1696–1721), where Indigenous peoples and settlers lived together. In addition, preliminary analyses of metagenomic soil sequencing provide insights into the environment in which the bodies decomposed and, possibly, into the ancient landscape surrounding the fort.

THURSDAY • Poster Session 2 • 1:30–5:00**Skeletal biology, taphonomy, and methods**

Poster 1

Investigating the Development of Epigenetic Traits Along the Superior Border of the Scapula

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Research suggests that factors such as age-at-death, sex, socioeconomic status during development, and side can impact the morphology of the superior border of the scapula, however, the relationship between these factors and the growth and development of epigenetic traits are lesser explored. This research investigated factors impacting the morphology of the superior border of the scapula, specifically the development of epigenetic traits. This research can further be used to assist in personal identification in medicolegal investigations through antemortem-postmortem comparisons. Computed tomography (CT) images of 346 decedents of European affinity were assessed, and scapulae were classified according to the Natsis and colleagues (2007) classification system. The relationship between trait presentation, trait presence/absence and eight different factors was assessed using Chi-Square Tests of Independence. 324 scapulae showed a notch and 15 showed a foramen. There is a statistically significant relationship between trait presentation and socioeconomic status (SES) as a child, trait presence/absence and SES as a child, and presence/absence of suprascapular foramen and age ($p < 0.05$). No association was found between trait presentation with regards to age and sex. Bilaterality is still being explored.

Poster 2

Utilising Non-Standard Sex Estimation Methods on Adult Individuals from Guelph, ON (1827-1853 CE): A Preliminary Investigation*

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In 19th century settler communities, biological sex would have been an important variable in the gendered division of labour. The skull and pelvis are used in traditional sex estimation methods and are often poorly preserved, limiting their application. This was the case for many of those buried at the Public Burying Ground in Guelph, ON, where earlier attempts were made to clear the site of burials. This study aimed to find an alternative approach to sex estimation in adults over 20 years of age using metric methods proposed by Sallie and colleagues and Sulzmann and colleagues to evaluate the metacarpal and carpal bones and provide an estimate for 43 adults. To examine sex-related differences metrically, adult individuals had to have at least one left metacarpal and at least one carpal bone present from either side. A sliding hand calliper and soft measuring tape were used on carpal bones to obtain up to 56 measurements per side ($n=42$), and 15 measurements from individuals with left

metacarpals (n=43). Two models were created in R Studio using discriminant function analysis to estimate the sex of the individuals based off of these measurements. Preliminary results showed that both test models were able to correctly estimate 87.5% of the individuals' biological sex using metacarpal and carpal measurements. As archaeological contexts have varying levels of preservation, increasing our options to obtain a sex estimate from non-standard bones to include fragmentary individuals will better our understanding of the person and the community's demographics such as gendered occupation and health. This method may also increase objectivity as measurements are used rather than observing the morphology of features involved in traditional sex estimation methods. Future research will involve comparing results from peptide analysis with results obtained from the metric measurements to determine accuracy and reliability of metric analyses for sex estimation.

Poster 3

Forensic Age Estimation Using the Scapula: Validation of a Population Neutral Method*

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Many adult skeletal age estimation methods are population specific, limiting their applicability in forensic contexts where population affinity is indeterminate or unassessable. The scapula has been proposed as a promising skeletal region for age estimation because it exhibits minimal population variation while undergoing predictable age-related morphological changes. This study evaluated age-related scapular morphology using Three-Dimensional (3D) rendered Computed Tomography (CT) scans to develop a composite scoring method. A total of 160 de-identified postmortem CT scans (51 Black, 53 Hispanic, and 56 White individuals) from the New Mexico Decedent Image Database were assessed. Six traits observable on CT were scored. Associations between trait expression and age were evaluated using Chi-square and Fisher's exact tests, while simple linear regression evaluated the relationship between composite score and chronological age. The sample was stratified into independent training (n = 79) and testing (n = 20) datasets. The regression model and 95% prediction intervals were developed using the training dataset and subsequently applied to the independent testing dataset. All six traits demonstrated significant associations with age ($p < 0.05$). Simple linear regression showed that the composite score explained approximately 70% of the variation in chronological age ($R^2 = 0.697$, $p < 0.05$). Composite scores correctly classified 19 of 20 testing individuals within the corresponding 95% prediction interval. When complete trait scoring was not possible, a milestone method correctly classified 75% of individuals. These findings support the scapula as a population-neutral region for adult age estimation and provide a validated composite scoring method for forensic application.

Poster 4

A Review of Machine Learning Applications on Human Crania for Sex Estimation and Population Assessment

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Machine learning (ML) increasingly supports the analysis of human remains, yet its performance across cranial applications is still inconclusive. This review examines how researchers use classical ML, deep learning (DL), and unsupervised learning to estimate biological sex and assess population affinity from human cranial data. Following PRISMA guidelines, we searched PubMed, Scopus, Web of Science, and Google Scholar through July 2025, screening records via Rayyan. Twenty-six studies met the inclusion criteria. Classical ML methods (e.g., SVMs, ANNs, ensemble approaches) consistently outperformed traditional statistical techniques like DFA

and logistic regression, particularly when integrating multi-feature cranial and dental metrics. DL models, especially CNNs, excelled at automated feature extraction from 2D and 3D images, demonstrating high value for fragmented remains by capturing subtle variations in regions such as the foramen magnum and piriform aperture. Unsupervised methods demonstrate practical utility in forensic anthropology and bioarchaeological contexts where labeled data is often unavailable. However, sample size, population-specific variation, data standardization, and overfitting still limit model accuracy. Ethical considerations also emerged while reviewing studies, specifically regarding data provenance, community engagement, forensic bias, and data stewardship. Ultimately, while ML shows transformative potential for forensic and bioarchaeological human identification, high accuracy within a study does not mean the model can be successfully generalized to other datasets. Future research must prioritize representative reference datasets, external validation, model interpretability, and culturally responsible, reflexive data practices.

Poster 5

How Accurately Can Dental and Skeletal Development Predict Menarcheal Status? A Test of the DeWitte and Lewis Criteria

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Estimating menarcheal status from human skeletal remains can provide insights into pubertal development, health, and the transition to adulthood in past populations. Existing criteria classify adolescent females as postmenarcheal when hand phalangeal epiphyses are capped or partially fused, and as premenarcheal when the mandibular canine root is still developing. However, their predictive performance has not been adequately tested in individuals with documented age at menarche. This study evaluates these criteria in a cross-sectional sample of 32 girls with documented age at menarche: 18 premenarcheal and 14 postmenarcheal. Mean age at menarche was 12.9 years. Data were retrieved from the Electronic Encyclopedia on Maxillofacial, Dental, and Skeletal Development. Maturation of the first, third, and fifth proximal phalanges; third and fifth middle phalanges; and first, third, and fifth distal phalanges was assessed using the TW3 method. Individuals at stage G, representing epiphyseal capping, or later were classified as postmenarcheal. Mandibular canine development was assessed using Demirjian stages, with stage G or earlier classified as premenarcheal. Predicted and documented status were compared separately for each indicator to calculate accuracy, sensitivity, and specificity. The fifth distal phalanx performed best, achieving 93.8% accuracy, 92.9% sensitivity, and 94.4% specificity. The third distal, third and fifth middle, and fifth proximal phalanges each achieved 90.6% accuracy. The mandibular canine achieved 78.1% accuracy, 78.6% sensitivity, and 77.8% specificity. These findings support hand phalangeal maturation as a promising predictor of menarcheal status in this sample, while indicating lower predictive performance for mandibular canine development. Further validation in larger samples is needed to assess applicability to past populations.

Poster 6

Seeking Validation: A Forensic Anthropological Test of Luna and Colleagues' Method for Sex Assessment of Non-adult Skeletons Using CT Scans*

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The construction of a biological profile, encompassing the sex, age, population affinity, and stature of an individual, is integral to a forensic anthropologist's analysis, ideally leading to the

identification of a deceased individual. Despite having sex assessment methods that are highly accurate for the skeletal remains of adults, this is not the case when it comes to children's skeletal remains. The issues of age, population affinity, rates of hormone secretion, and lack of robust skeletal collections continue to impact the comparative lack of accurate and reliable sex assessment methods for aiding in constructing the biological profiles of deceased children. This research is the first to take a forensic anthropological, computed tomography approach to testing Luna and colleagues' sex assessment method using the auricular surface for non-adults. 3D models of sixteen females and eighteen males included in the New Mexico Decedent Image Database were created from CT images using 3D Slicer. The sample was divided into two age cohorts (0–5 and 6–8). Metric and morphological observations were taken within 3D Slicer, and statistical analyses were computed using SPSS. None of the metric or morphological features reached the 80% accuracy standard of forensic anthropology. The metric variables accurately assessed males more often than females, while the morphological variables accurately assessed females more than males. Additional validation tests should take age-at-death into account and explore the impact of different 3D computing programs and slice thicknesses on the quality of 3D models used to assess this method.

Poster 7

The Value of the Retroauricular Area of the Ilium for Adult Age Estimation

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The retroauricular area, the zone immediately posterior to the auricular surface of the ilium, has traditionally not been seen as a valuable indicator of age at death. However, using our revised protocol consisting of only two scores provided coarse but accurate estimates of age. The method was quick and simple to apply, requiring minimal training. This research classified individuals, using logistic regression, into three age groups: younger (20-39 years old), middle-aged (40-65), and older adults (66+). These age groups were recognized to fit data patterns naturally and have been practically observed and recommended by previous independent research. The group of 105 individuals examined was selected through stratified sampling to ensure balanced representation by sex and age among those housed in the Terry Collection at the Smithsonian Institution. Using the retroauricular area as a sole age indicator classified individuals to the correct age group 60% of the times. A different approach tested, using 17 scores from the entire auricular surface (including the retroauricular area) and the same methodological approach, obtained 66% accuracy. The results reflect an improved classification for younger individuals compared with using the retroauricular area alone, while the previous accuracy in identifying older individuals is maintained. Overall, the substantial increase in time and effort using the entire auricular surface does increase accuracy of the age group classification, but not by the same magnitude. Therefore, question remains if the retroauricular area could be valuable as a sole indicator of adult age at death.

Poster 8

Stability in the rate of secondary dentine deposition across diverse populations: Implications for age estimation from pulp to tooth area ratio

Laure Spake 1; Alexandra Semma Tamayo 1; Maria Biannet Perez 1; Nicola J Murray 1; Ashith B Acharya 2; Nursel Akkaya 3; Nihal Avcu 3; P Balaji 4; Hatice Boyacıoğlu Erden 3; Stefano De Luca 5; Usha Jambunath U 4; Felipe Aguilera Muñoz 6; Humeysra Özge Yılcı H 7; G Poornima G; Matthew V Emery 1; Nolan Robinson 1,8

1 Binghamton University; 2 Shri Dharmasthala Manjunatheshwara University; 3 Hacettepe University; 4 Rajarajeswari Dental College &

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The extent to which populations vary in the timing of aging for specific traits remains poorly understood, though anthropologists have long argued that population-specific age estimation methods are needed. We examine the contribution of within and between population variation in the relationship between age and secondary dentine deposition in the mandibular canine. Secondary dentine deposition is argued to yield highly precise estimates of adult age, particularly for older adults. We use a sample of radiographs from 970 adults (485 males and 485 females), aged 18 – 90 years, from five populations in Chile, India, Portugal, Turkey, and the USA. The areas of the pulp cavity and entire tooth were measured, and the pulp to tooth ratio was calculated. Relative explanatory power of within and between population variation to overall variance was assessed using multilevel modeling, model comparison, and variance decomposition. Sexual dimorphism in the pulp to tooth ratio was found for two populations; therefore, sex was kept in the explanatory models. Adding a random intercept for each population captured only 1.3% of the residual variance, while adding a random slope captured less than 0.1%. At 45 years, the difference between the mean pulp to tooth ratio of the populations with the smallest and largest averages was roughly 0.004 units, corresponding to shifts in mean estimated age of 0.7 – 2.4 years depending on the method used. Population variation has a minor impact on adult age estimation from secondary dentine deposition, suggesting that well designed estimation methods could be used across populations with minor bias. Rather than proliferating population-specific methods, further research should focus on evaluating the precision of this indicator, the usefulness of a universal estimation method, selecting appropriate statistical models, and assessing differences in aging between general and forensic samples.

Poster 9

The Impacts of Skeletal Element Preservation on Ancestry Estimations in Forensic Anthropology

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Ancestry estimations are a heavily debated topic within forensic science and anthropology alike. Some see these estimations as necessary and advantageous in aiding law enforcement's search for a missing individual, whereas others emphasize the dangers of perpetuating concepts of biological race while also highlighting notable limitations of both metric and non-metric methods used to complete these estimations. One prominent limitation is the absence of research concerning the impact that differential skeletal element preservation has on ancestry estimations. The goal of this study was to investigate the impact of skeletal preservation on the ancestry assessments generated from morphological assessments (via *hefneR*), and metric measurements (via *FORDISC 3.1*). Eleven non-metric traits associated with the *hefneR* method, and twenty-seven metric measurements used by *FORDISC* were scored and measured on ten Bone Clone crania and ten real crania from Trent University's teaching collection. To mimic fragmented and/or poorly preserved crania, partial data was input into these two ancestry estimation software programs, with the results quantified. Additionally, through intraobserver and interobserver error tests, this study explored the impact of assessor experience, and the role poor preservation plays in exaggerating errors between practitioners, ultimately contributing to the discourse on the utility and applicability of ancestry estimation methods in forensic casework. Results showed that the absence of the nasal bridge, half of the facial skeleton, and the entire facial skeleton all have negative impacts on ancestry estimates being made by both the morphological and metric methods, and that they exaggerate both intraobserver and interobserver errors. Additionally, the results showed generally poor estimate accuracy across all analysts. This is important for the future of ancestry estimation, as it indicates that ancestry estimates are less reliable with poor facial bone

preservation, which could cause greater harm than good due to the social challenges surrounding the use of ancestry estimates.

Poster 10

Decomposition in Manitoba: Establishing a Timeline*

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The purpose of this research was to understand the effects of cold temperatures on the process of decomposition to aid in establishing a timeline in cold weather environments. Doing so can help forensic anthropologists estimate time since death. In cold climates, taphonomic changes may be limited, but when deceased individuals are frozen, external barriers, such as skin, weaken due to physical and chemical changes during decomposition. Therefore, determining what changes occur and when is important for understanding decomposition in cold climates. For this study, a deceased 272-pound male pig was placed in The Brandon Hills on October 23, 2024, and taphonomic changes were recorded until April 30, 2025. Throughout this period, the temperature fluctuated between 12.7°C and -31.8°C. As expected, the coldest temperatures were between December 2024 and March 2025, when temperatures were below 0°C. Both insect activity and animal scavenging were observed but occurred at different times, as insect activity began on April 10, 2025, and animal scavenging began on March 5, 2025. Decomposition was scored following Bass (1997) and Megyesi and colleagues (2005). As expected, overall, there was no soft tissue decomposition during the winter, as the decomposition of the trunk and head and neck started to occur on April 18, 2025, and showed a skipping of decomposition stages, related to the shift in the daily average temperature when temperature started rising above 0°C. The decomposition of the limbs started on November 6, 2024, showing both merging and skipping of decomposition stages, and corresponded to both temperatures above and below 0°C. Cold temperatures slow and halt decomposition, but the rate of decomposition, the exact temperature at which decomposition resumes as the pig thaws, and whether decomposition proceeds consistently throughout the pig were not determined, limiting time since death assessments.

Poster 11

Analyzing taphonomic processes in contemporary Mexican femora using the Castillo Blas (2026) pilot scoring system*

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Taphonomy refers to the study of post-mortem processes affecting skeletal remains, including bone degradation. Bone degradation can occur within osteological collections as a result of continued handling for educational purposes and improper storage. These factors complicate preservation efforts and may compromise bone integrity, potentially reducing the likelihood of successful genetic testing for identification purposes. The National Autonomous University of Mexico's (UNAM) School of Forensic Sciences (ENaCiF) has an osteological collection containing elements in diverse states of degradation. Current preservation practices draw on guidelines from varied sources, but proper preservation strategies should consider the unique condition and degradation trajectory of individual bones. The purpose of this work is to analyze the taphonomic processes seen in the femora of a contemporary Mexican osteological collection using a pilot scoring system (in development) by Castillo Blas. The objective is to standardize observations, provide a descriptive inventory of major taphonomic changes, and develop preservation guidelines based on an understanding of how taphonomic processes affect skeletal degradation. The sample consists of 68 femora from the ENaCiF

osteological collection. Each femur was individually assessed using the pilot scoring system to document the presence or absence of taphonomic processes and, when present, evaluate the degree of affected areas. The expected results will include new information about taphonomic processes present in the contemporary Mexican femora housed at the ENaCiF osteological collection. The findings will evaluate the applicability of the pilot scoring system as a potential method for analyzing other osteological collections, particularly in Mexico and Latin America. Ultimately, the scoring results will contribute to the development of new preservation guidelines for femora at the ENaCiF osteological collection, with the final goal of maintaining sufficient bone integrity for future genetic testing.

Poster 12

Taphonomic study of long-term burials*

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Purpose: The purpose of this research is to determine how burial conditions affect bone preservation from long-term burials (i.e. more than 30 years) by examining the remains of 60 dogs buried for at least 35 years, in order to provide forensic anthropologists with novel information that can be used to assist with the estimation of postmortem interval. **Background:** Accurate estimation of PMI is difficult no matter the stage of decomposition, however, it becomes increasingly complicated when the individual is completely skeletonized, due to the lack of research into the rate of decomposition of skeletal remains under different conditions. **Methodology:** The level of preservation of the skeletal remains of 60 dogs that were exhumed from long-term burials were scored from 1 to 5 using a bone preservation scale where 1 represents "Strong Complete bone" and 5 represents "Bone Meal/Ghost". **Key Findings:** A Kruskal-Wallis test showed that there were statistically significant differences between level of preservation of each individual depending on burial container ($p < 0.05$). A Chi-Square test showed that garbage bags are associated with good preservation and no external covering is associated with poor preservation ($p < 0.05$). **Implication:** These results suggest that the level of preservation of skeletal remains from a long-term burial is dependent upon the container an individual was buried in. **Conclusions:** Different factors affect the way that skeletal remains decompose over time, resulting in bones that do not visually correspond with their actual PMI.

Poster 13

Taphonomic Bone Surface Modifications: A Winter in Northern Ontario*

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Forensic taphonomy persists as a field that requires additional research, especially with respect to cold weather taphonomy and the effects of cold climates on bone surface modifications. Weathering patterns have been explored as a method of determining post-mortem interval (PMI), however these studies have largely been limited to warm climates. This study aimed to describe bone surface modifications over the course of one winter in Northern Ontario and observe the effects of the environmental conditions on the bone surface. Partially defleshed humeri and ribs of domesticated pig (*Sus scrofa domesticus*) were placed in a wooded area in Sudbury, Ontario and collected monthly over nine months. Samples were chemically macerated and examined under a dissection microscope to document bone surface modifications. These findings were compared with durations of environmental exposure and to recorded temperature and relative humidity to assess relationships between environmental conditions and bone surface modifications. Cortical bone thinning increased over the course of the study, primarily on humeri. No flaking was observed during the study period, likely due to the humid conditions preventing the samples from fully drying out. This study highlights the need for research in bone weathering in cold climates, as the

pattern observed in this study differed from those previously described in literature. Understanding bone surface modifications under these conditions may be particularly relevant to forensic investigations, as skeletal remains deposited during late fall or winter are typically not discovered until spring, when melting snow increases access and visibility.

Poster 14

Taphonomic Changes to Fresh Bone in Freshwater and Saltwater Environments: The Influence of Salinity and Submersion Duration

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Estimating the postmortem submersion interval (PMSI) in aquatic environments presents a critical yet challenging task for forensic anthropologists, owing to the influence of multiple environmental variables. While decomposition in terrestrial environments has been studied extensively, aquatic taphonomy, particularly skeletal changes, remains comparatively underrepresented. This study investigates how freshwater and saltwater environments influence taphonomic changes in fresh bone, with particular attention to the role of salinity and duration of submersion. Twenty-four sectioned pig ribs were submerged for four weeks under controlled freshwater (0 ppt) and saltwater conditions (35 ppt and 50 ppt) and monitored weekly for macroscopic changes in texture, colour, porosity, structure, and substance growth. Results indicated that the first observable alterations occurred during Week Two in specimens submerged in both 35 ppt and 50 ppt saltwater, consisting of changes in porosity. No differences in the timing or types of observable changes were identified between the two saltwater conditions, and no additional macroscopic changes were recorded through Week Four. In the freshwater condition, the first alteration was observed during Week Three, consisting of substance growth in one specimen. During Week Four, one specimen exhibited changes in porosity, substance growth, and structure, while another exhibited changes in texture and substance growth. The limited taphonomic alteration observed when salinity was the primary manipulated variable suggests that salinity alone may have a comparatively limited influence on early skeletal change, while environmental factors such as microbial activity, water movement, and temperature may be more influential drivers of taphonomic change. This study provides a baseline for future research that could inform forensic investigations involving submerged skeletal remains and facilitates future experimental studies focusing on salinity.

Poster 15

Old Friends and Curious Acquaintances: Reshaping Biological Anthropology's Morphological Methods Toolkit*

Katherine E. Brent 1,2

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Morphometric analyses have long been critical to the biological anthropologist's toolkit, with applications in human skeletal biology, primatology, and beyond. Geometric morphometric (GMM) analyses are a suite of analytical methods commonly used in biological anthropology to provide insight into how phenotypic morphology varies within and between individuals and groups. While GMM techniques have been instrumental in discerning patterns of shape variability, are they always the right tool for the job? Notably, other fields, such as anatomy and engineering, use similar yet distinct methods, such as statistical shape modelling, to answer similar morphological questions. Through a case study examining available methods in shape analysis, both familiar (such as GMM) and less so (such as statistical shape modelling), this paper discusses the importance of diverse and informed methodological choice. While biological anthropology is an inherently interdisciplinary field, trends in methods used in

published research studies demonstrate a tendency within our field to resort to methods that are familiar to us and our peers. Though relying on "old friend" methods can often be appropriate, making the company of "curious acquaintance" methods from other disciplines can also be grossly beneficial, with applications that go beyond shape analysis alone. We should work to better consider whether familiar tools are the most suitable option to answer our questions, or if unfamiliar and developing methods may, depending on the questions posed, provide more illuminating information. Diverging from commonly used anthropological methods will require increased education and transparency surrounding technique use, and also necessitates further research into method comparison and validation for maximum comparability between studies. Ultimately, this paper discusses the merits of exploring and employing the methods that best address the research questions at hand, even when unfamiliar.

Poster 16

Evaluating the Reliability of Periodontal Disease Scoring Methods in Bioarchaeology*

Sophie Clark 1

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Periodontal disease is used to assess oral health in past populations, despite the lack of a standardized scoring approach in bioarchaeology. Establishing how periodontal disease is assessed is an essential first step in determining methodological agreement and challenges across the literature. Current methods are affected by age-related eruption, dental wear, antemortem tooth loss (AMTL), taphonomy, and interobserver error. These limitations affect the reliability and comparability of research. This research uses a systematic literature review to identify methodological approaches for assessing periodontal disease in bioarchaeological skeletal samples and evaluate how limitations are acknowledged and addressed. Peer-reviewed studies were located through Google Scholar, JSTOR, the Journal of Periodontology, and the Journal of Osteoarchaeology. To be included, articles were required to measure periodontal disease using a metric or non-metric method in human skeletal populations. Articles were assessed for sample transparency, interobserver reliability, and acknowledgment of scoring limitations, including age-related eruption, dental wear, taphonomy, AMTL, and non-linear progression of periodontal disease. Studies were assessed for methodological amendments addressing limitations. Thirty-seven articles fit these criteria, twenty-three of which quantified periodontal disease using measurements from the cemento-enamel junction to alveolar crest. Taphonomy was the most frequently identified limitation (19/37 studies), followed by age-related eruption (14/37), AMTL (13/37), and dental wear (12/37). Interobserver error was cited least in 4 of 37 studies. Despite frequent acknowledgment of methodological limitations, only 4 articles amended their methodologies to address them. Periodontal scoring methods are confined by biological and taphonomic factors, which may complicate interpretation of periodontal disease in skeletal samples. Methodological variation in scoring, and minimal effort to address limitations may reduce the reliability and comparability of bioarchaeological assessments of past oral health. Establishing the current state of periodontal disease research provides a necessary foundation for developing more explicit and consistent scoring criteria in bioarchaeology.

Poster 17

Pelvic Girdle Reconstruction: From 3D Scans to Geometric Morphometric Analysis

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The study of skeletal indicators of parturition has been of interest in biological anthropology and various approaches involving skeletal changes in the female pelvis have been used to attempt to understand health and development in the past including fertility,

population composition, mortality, number of births, cultural practices surrounding parturition, and childhood. This study used a novel approach of pelvic girdle reconstruction to examine skeletal indicators of parturition. The goal is to understand how female pelvic shape may be either conducive or restrictive to childbirth. This poster will present a novel method of reconstruction of the pelvic girdle using 3D scanning and employ geometric morphometric analysis for the examination of parturition in an Austrian Avar sample. 30 Avar female individuals with intact pelvic girdles were chosen from Bruckneudorf cemetery, Austria, dated to the 7th-8th century. Conservators tape was used to rearticulate the pelvis and reconstruct the shape of the pelvis as it likely would have been in life. The HP 3D Scan Pro S3 structured light scanner was used to 3D scan the pelvis. Based on previous studies, structured light 3D scanners have proven to produce accurate reproductions of complex objects. Geometric morphometric analysis used 331 landmarks, with data analyzed in R Studio, using the package Geomorph 3.2.0. Preliminary results suggest that a narrow pelvic canal may correspond to increasing severity of pelvic feature presentation and further statistical modeling will elucidate additional results. This poster will present a novel approach for reconstructing the pelvic girdle for parturition analysis. This method of pelvic reconstruction and 3D scanning allows the ability to apply digital analyses, such as geomorphometric analysis, and access to an accurate reproduction of the pelvis while reducing the amount of handling of the real bone.

Poster 18

Sample size requirements for estimating the population covariance of two variables: results from a preliminary analysis using random resampling of variables from Howells data set

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Covariance among variables is used extensively in quantitative genetic studies or in the study of morphological integration and evolvability where the phenotypic variance-covariance matrix has particular analytical importance. Covariance is a measure of the extent to which there is a linear relationship between two variables, for example j and k , with a positive covariance value indicating that large values of each variable tend to occur together, and a negative covariance value indicating that large values for one variable tend to occur with small values for the other variable. Despite the importance of covariance in our field, little research has examined how sample size affects estimates of the population parameter—the true covariance between variables. Here, using random resampling with replacement of variables from Howells craniometric data set comprising 1368 observations (males), we generate probabilities that the sample estimate of covariance (q_{jk}) between variables j and k is within $\pm 5\%$, $\pm 10\%$ or $\pm 20\%$ of the population parameter K_{jk} based on a range of sample sizes, where K is represented by the observed covariance between variables in the data set. These probabilities represent the degree of confidence one has that the sample estimate q_{jk} is within the desired fraction (accuracy) of the population parameter K_{jk} based on the sample size n . Our results show that for the most part large sample sizes were required to generate accurate sample estimates with confidence. For example, a sample size of $n=80$ yielded an estimate q_{jk} that was within $\pm 20\%$ of K_{jk} 80% of the time, but a sample size of $n=500$ was needed to yield an estimate that was within $\pm 10\%$ with 90% confidence. Sample sizes of $n>1000$ were needed to estimate all values of K used in this study when the desired level of accuracy was $\pm 5\%$ regardless of the level of confidence.

Poster 19

Techniques for 3D visualization of X-ray microcomputed tomography images: a votive mummified ibis case study*

Emma Warner 1; Shumeng Jia 1; Maris Schneider 2; Salah Eddine Brika 3; Vladimir Brailovski 3; Nicolas Piché 4; Anthony Howell 5; Annie Lussier 5; Andrew J. Nelson 2; Natalie Reznikov 1,6,7

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Non-invasive radiographic imaging techniques are commonly used to investigate the internal contents of archaeological specimens, including mummified remains. Microcomputed tomography (μ CT) provides high-resolution three-dimensional (3D) image data well-suited to examining smaller specimens such as mummified animals. However, isolating and visualizing individual structures can be challenging because of bundle compression, the presence of resins and packing materials, and multiple layers of shrouds. Moreover, desiccated soft tissues may have similar X-ray attenuations to bones, especially in small and gracile specimens, imposing an additional challenge. A mummified ibis at the Redpath Museum (McGill University) was examined using deep learning-aided segmentation of μ CT scans, revealing a chick instead of an adult ibis, the symbol of Thoth. A deep neural network for image segmentation was trained on manually segmented 2D slices, comprising approximately 2% of the total 3D image volume. The segmentation was binary, into 'bone' and 'background'. Then, the background was used to digitally mask everything except the skeletal elements while preserving the greyscale intensities of the original μ CT data. This masked volume allowed for more nuanced visualization and morphological interpretation of the skeleton, supporting identification of the specimen as a sacred ibis, and revealing that the individual was unhatched and had moderate perimortem damage. This case study demonstrates how segmentation-based masking of high-resolution μ CT data can improve 3D visualization of complex archaeological specimens while retaining information contained in the original greyscale volume. This approach is particularly valuable for small, gracile, or immature remains, in which low-density skeletal elements and fine morphological features may be difficult to distinguish. These features shed important new light on the votive mummy industry in Ptolemaic Egypt, improving our understanding of the past relationship between humans and animals, and together contribute to the preservation of cultural and natural heritage related data.

Poster 20

Are processes of tooth crypt and crown formation conserved across centuries in British non-adult humans?

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Although studies have begun exploring the tooth-bone interface (TBI) of non-human primates, the developmental relationship between permanent crypt size and shape and tooth form remains unexplored in archaeological humans. We sampled British archaeological non-adult skeletal collections excavated from cemeteries in use during the 9th-19th centuries, held at the Universities of Bradford and Sheffield and Durham University. We hypothesized that the size, shape, and positions of crypts and the teeth developing within would be consistent across human populations. Using digital radiographs and photographs from these specimens ($n=102$), this study examined patterns of crypt

morphology with tooth mineralization stage and eruption. Using ImageJ software to view image files, the qualitative analysis coding for crypt shape, intercrypt fenestrations, permanent molar gubernaculæ, and gubernacular canal presence and location. Crypt and tooth mineralization were scored using an established 12-stage system. Of the second and third molars over 50% presented with round crypts and ample space for tooth growth, while ante-molar teeth had crypt shapes that tracked the crowns' contours. These findings align with the expected sequence of permanent tooth development and eruption in contemporary humans. A relationship between crypt shape and intercrypt fenestration was also observed, whereby crypts in a transitional phase were more likely to present with openings in the bony wall. Gubernaculæ were identified for all molars, either clearly on radiographs or through photographic confirmation. Gubernacular canals were also commonly observed in the photographs, consistent with the presence of developing permanent teeth. These findings support our study hypothesis because observations were consistent across the entire sample regardless of century. This work supports that these developmental processes at the TBI are conserved regardless of sociocultural change in these regions of Britain.

Poster 21

Introducing the Onion Method: A novel method for incremental sampling of dentine growth layers for stable isotope analysis

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Incremental sampling of dentine growth layers (GLs) for stable isotope analysis (SIA) permits investigation of life histories within individuals. Traditional methods, however, are not well suited for sampling conical GLs characteristic of marine mammal teeth, and are additionally limited by small sample sizes, the need for specialized equipment, and the production of impure analytical substrates (e.g., whole dentine vs purified collagen). We propose a novel method (the "Onion Method") for incremental sampling of dentine GLs for SIA, developed using 60 teeth from long-finned pilot whales (LFPW; *Globicephala melas*) harvested in the Faroe Islands between 1986 and 2021. Half or quarter-teeth were etched with 10 % formic acid to visualize GLs, demineralized in 0.5 M HCl, and dentine GLs were strategically peeled along the central tooth axis in the direction of their formation using photographs of etched teeth against a scale bar as a reference. Increments underwent another one hr demineralization treatment in 0.5 M HCl and were solubilized in 0.01 M HCl for 36 hr at 62°C. Resulting dentine collagen increments (n = 923) were analyzed for stable carbon and nitrogen isotopic and elemental compositions. Across all LFPW dentine collagen profiles (N = 60), the Onion Method captured mean $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ intra-individual ranges of 0.99‰ ($\pm 0.37\%$) and 2.85‰ ($\pm 1.25\%$), respectively, with a maximum intra-individual range of 2.17‰ for $\delta^{13}\text{C}$ and 5.48‰ for $\delta^{15}\text{N}$. By peeling dentine increments apart in the direction of their formation and extracting purified collagen from each, the Onion Method captures biologically meaningful isotopic variation while minimizing the mixing of dentine GLs. This method produces a robust chronological time series with plentiful data for reconstructing individual life histories. We believe that the Onion Method is an ideal technique for incremental sampling of dentine GLs for SIA that can be easily adapted for all types of teeth.

Poster 22

Taphonomy in 3D! The Use of a Free Photogrammetry App to Assess Taphonomic Alterations and Pathological Conditions on Bone*

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Key assessments in bioarchaeology include taphonomy and pathology, the studies of post-mortem changes to bone and disease, respectively. These analyses are instrumental in understanding the health of an individual during life and the treatment of their remains after death. In bioarchaeology, three-dimensional (3D) models have effectively been used to capture the condition of bones in situ in a non-invasive manner. However, the biggest barrier to using 3D methods is the high cost of equipment and processing softwares. The goal of this research was to determine whether a free photogrammetry software can allow for more successful examination of taphonomic alterations and pathological conditions in comparison to an expensive structured light scanner (SLS). We created 3D models of 10 bones from the University of Toronto Mississauga teaching collection with known alterations and conditions using a professional grade structured light 3D scanner and a free photogrammetry app. One participant assessed the taphonomy of the physical bone, the SLS 3D models, and the photogrammetry 3D models. The presence and absence scores for each of these three methods were statistically compared by taphonomic category across all 10 bones using Cochran's Q Test. Significant differences were found only in the post-mortem damage category. This discrepancy was observed because the photogrammetry app did not capture post-mortem damage as effectively as the structured light scanner when both were compared to the physical bone scores. In contrast, photogrammetry captured cut marks and rodent scavenging in high detail, and the scores for all 10 bones were nearly identical to those of the physical bone. While the free photogrammetry app was limited in capturing some details, it is promising in its potential use as an accessible and non-invasive tool for taphonomy assessments. Photogrammetry models can be beneficial in bioarchaeology analyses and education; however, these applications should be explored through further research.

Poster 23

Sex Assessment for Fragmented Forearm Elements Using Cross-Sectional Geometry

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Forensic anthropologists conduct a biological profile (age at death, skeletal sex, population affinity and stature) to provide information that will aid in the identification process of an unknown individual. Estimating the sex of an unknown individual reduces the pool of likely missing persons by one half, making it a valuable component of the biological profile. Common methods of sex assessment use measurements from undamaged, whole bones, so when remains are found in a fragmented condition, fewer methods are applicable. The radius and ulna are recovered in fragmented conditions in about one third to 50% of forensic cases. The objective of this research was to create a method of sex assessment to be used in cases where only fragmentary remains are recovered, and/or access to the dry bone is limited. This was accomplished by establishing differences in cross-sectional geometry (CSG) using computed tomography (CT) scans. 3D Slicer version 5.8.1. was used to take cross-sectional area measurements on CT scans of the radius and ulna. Statistically significant differences in cross-sectional area between males and females were identified across all examined regions. There was highly consistent intra-observer agreement across all regions, and a general pattern of consistent to highly consistent inter-observer agreement across all regions, with only the left ulna (10% section of bone) demonstrating moderate inter-observer agreement. Discriminant function models produced reliable cross-validated classification results, with a low of 81.7% and high of 95% (for pooled data – left and right sides). Across the left and right sides independently, all regions produced cross-validated classification accuracies above 80% except for the left ulna at the 10% section of the bone (73.3%). Further validation using more robust, and fragmented samples is recommended.

FRIDAY • Poster Session 3 • 8:30–1:00**Primateology****Poster 1****Primate Play and the Classificatory Making of Human Nature****Bădescu, Iulia***1 Département d'anthropologie, Université de Montréal*

Primate play is often interpreted as a developmental activity through which immature individuals acquire capacities used later in life. I use play to examine a wider process in behavioral research: how classification helps produce behavioral data and shapes the explanations those data can support. It asks how juvenile actions are classified as play and become evidence for claims about development, evolution, and “human nature.” I argue that the same analogies to adult behavior that help recognize and organize juvenile actions as play later reappear in explanations of the roles or capacities that play is proposed to develop. Examples show how such developmental hypotheses become entangled with culturally familiar narratives of gender and human evolution, particularly as scientific claims circulate publicly. A comparative anthropology of play should keep these evidentiary steps visible, distinguish adult analogies from demonstrated developmental outcomes, and situate play within immature primates' immediate social and material worlds.

Poster 2**Social Behaviour of the Critically Endangered Coquerel's sifaka (*Propithecus coquereli*) in a human-modified landscape, northwestern Madagascar****Coral Chell 1,2; Hanitriniaina Raharinirina 3; Sylvanah Rabesahala 3; Shawn M. Lehman 1***1 Department of Anthropology, University of Toronto, Toronto, Ontario, Canada; 2 School of the Environment, University of Toronto, Ontario, Canada; 3 Mention Zoologie et Biodiversité Animale, Université d'Antananarivo, Antananarivo 101, Madagascar*

Anthropogenic disturbance can generate ecological pressures on animals. Some primate species can adapt to land-use changes by changing the occurrence and rates of their social behaviour. Currently, we have few data on how *P. Coquereli*, a critically endangered lemur, responds to anthropogenic habitat disturbance. We investigated how social behaviour in the *P. coquereli* varied across a heterogeneous human-modified landscape of Mariarano. We conducted behavioural day-follows on five groups: three occupying anthropogenically disturbed habitats and two occupying undisturbed forest habitats. Social behavioural data were collected following a 20-minute continuous focal sampling protocol for 180 days. Differences in play, huddling, grooming, aggression and scent marking behaviours were calculated between disturbed and undisturbed habitats. Groups occupying disturbed habitats spent significantly more time performing allo-grooming behaviour, significantly less time huddling, and were the only groups to perform play behaviour. There were no significant differences in the occurrence of aggression and scent marking, however group differences may exist. These results suggest sifakas are likely adapting their behaviour in anthropogenic habitats. Our research is a key component to understanding how this species persists in human-dominated landscapes.

Poster 3**The impact of forest fragmentation on vegetation and capuchin monkeys in Costa Rica*****Bonnie Cheng 1,2; Harper Correia-Kuehn 2,3; Amy L. Schreier 2,3; Laura M. Bolt 1,2***1 Institute of Forestry and Conservation, John H. Daniels Faculty of Architecture, Landscape, and Design, University of Toronto, Toronto, ON, M5S 3B3, Canada; 2 Maderas Rainforest Conservancy, P.O. Box 55-7519, Miami, FL, 33255-7519, USA; 3 Department of Biology, Regis University, Denver, CO, 80221, USA*

Forest fragmentation can negatively impact wildlife by changing the conditions of habitat at forest edges. We examined the impact of both anthropogenic and natural forest edges on vegetation, mammals including three monkey species, and birds at La Suerte Biological Research Station (LSBRS) in Costa Rica. We classified the forest using a 50m buffer for anthropogenic edge, riparian edge, combined anthropogenic and riparian edges, and forest interior. We predicted lower mean tree species richness, smaller diameter at breast height (DBH), less canopy cover, higher tree density, and lower tree height in forest edges. Since edge effects usually increase the mortality of vegetation, they typically prevent old growth trees from forming mature forest with a complex structure of forest layers, canopy, and diverse tree species. We also expected a greater number of mammal and bird sightings in the forest interior relative to forest edges, since forest fragmentation can shift tropical rainforest edges to an early-successional forest stage that lacks vegetation diversity and the structure to support abundant wildlife. In June 2026, we conducted 27 5x10m vegetation transects and 66 population surveys on mammals and birds along 10 transects throughout forest edges and interior at LSBRS. Aligned with our predictions, both anthropogenic and riparian edges had significantly less canopy cover ($p=0.0442$; $p=0.0383$), and riparian edge had shorter trees ($p=0.0236$). Although other mammal and bird species showed no differences in sightings across edge and interior, as expected, Panamanian white-faced capuchins (*Cebus imitator*) were sighted significantly fewer times in anthropogenic edge ($p=0.003$). Our results indicate that anthropogenic and riparian edges have negative impacts on vegetation structure, while anthropogenic edges had negative effects on capuchin monkey ranging. Capuchins may have avoided edges due to greater predation threat or less preferred food in this forest region.

Poster 4**Associations between stress-indicative behaviours and hematological parameters in rescued capuchin monkeys (*Sapajus spp.*): Implications for welfare and conservation****Marina de Castro Nascimento 1,2; Juliana Kihara 1; Sarah E. Turner 2; Renata Gonçalves Ferreira 1***1 Graduate Program in Psychobiology (Master's), Federal University of Rio Grande do Norte (UFRN), Natal, Rio Grande do Norte, Brazil; 2 Department of Geography, Planning and Environment, Concordia University, Montreal, QC, Canada*

Stress-indicative behaviours are widely used as welfare indicators in captive primates, but their correspondence with physiological changes remains poorly explored in Neotropical primate species. This study investigated associations between the frequency of stress-indicative behaviours and hematological parameters in rescued capuchin monkeys (*Sapajus spp.*) housed at the Wildlife Rescue Center of Rio Grande do Norte (CETAS/IBAMA-RN) Brazil between 2019 and 2023. We analyzed 117 complete blood samples from 71 individuals, linked to behavioural records from the three months preceding each exam. Twelve behaviours were reduced through Principal Component Analysis (PCA) into six dimensions: (1) abnormal ingestion and pirouetting; (2) active stereotypy; (3) reactive stereotypy; (4) body tension; (5) sexual self-stimulation; and (6) frenetic jumping and pendular movement. We used dimension scores as the response variable in linear mixed models

with individual identity as a random effect, and sex and age as fixed factors. We tested blood parameters in two formats: individual cell counts and leukocyte ratios (neutrophil-to-lymphocyte, eosinophil-to-lymphocyte, and monocyte-to-lymphocyte). Males showed a higher frequency of abnormal ingestion and pirouetting than females. Hematocrit was positively associated, and red blood cell count negatively associated, with reactive stereotypy scores; for frenetic jumping and pendular movement, this pattern was reversed, with juveniles also showing lower scores. Higher frequency of active stereotypy was associated with a lower neutrophil-to-lymphocyte ratio, reinforcing the role of this behaviour as a stress coping strategy. These findings reinforce the potential of behaviour as an indicator of health and welfare for captive animals in wildlife rescue centers, and the use of health monitoring to inform primate reintroduction and release efforts for conservation.

Poster 5

Inferring anthropoid locomotor behaviour from manual phalangeal articular surfaces and collateral ligament fossae

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Positional behaviour and locomotor adaptation are among the most basic ecological parameters defining extant primate taxa. Phalangeal morphology is routinely used to reconstruct fossil primate locomotion. Although it is widely accepted that manual phalangeal shaft curvature is responsive to locomotor specific patterns of mechanical loading associated with differing hand postures, fossil primate manual phalanges are typically fragmentary and often preserve only partial shafts in combination with proximal or distal articular morphology. Additionally, while analyses of complete manual phalangeal shaft curvature accurately discriminate bipedal and suspensory primates from digitigrade, terrestrial and arboreal palmigrade and knuckle-walking anthropoids, the latter group overlap extensively. This study evaluates the potential for proximal articular surfaces (PAS) and collateral ligament fossae (CLF) contour curvature to infer locomotion for a study sample (n=242 PAS; n=111 CLF) representing 16 anthropoid genera with diverse locomotor behaviour and hand postures. Segmented 3D models of PAS and CLF morphology were fitted to a quadric surface and mediolateral (ML; X axis) and dorsoventral (DV; y axis) contour curvature was quantified for digital rays 2-5. Results demonstrate that hominoid PAS DV curvature is concave, but that cercopithecoid and ceboid PAS DV curvature is convex. Primates with hand postures characterized by metacarpophalangeal hyper-extension (i.e. knuckle-walking, digitigrady, palmigrady) have mediolaterally restricted joints with increased ML contour curvature. Suspensory primates have flatter ML and DV contour curvatures that are typically similar in magnitude. Pongo is unique among suspensory primates by having pronounced PAS DV curvature that may reflect that taxon's 'double locking grasp' mechanism. More terrestrial anthropoids have deeper CLF with steeply sloped margins relative to suspensory primates. A more detailed understanding of the relationship between PAS and CLF morphology and locomotion has the potential to contribute valuable new insights to research questions addressing the evolution of hominoid locomotor adaptations.

Poster 6

L'influence du statut reproducteur sur l'utilisation spatiale des strates arboricoles par les femelles colobes magistrats (*Colobus vellerosus*)*

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La distribution verticale des ressources alimentaires dans la canopée peut créer des compromis entre l'accès à des aliments potentiellement plus nutritifs et les coûts de déplacement ou de recherche. Ces compromis pourraient être particulièrement

importants chez les femelles primates, dont les besoins énergétiques et nutritionnels varient selon le statut reproducteur. Cette étude examine si le statut reproducteur des femelles colobes magistrats (*Colobus vellerosus*) est associé à leur utilisation des strates arboricoles et à leur comportement alimentaire. Les données ont été recueillies de mai à octobre 2025 au Boabeng-Fiema Monkey Sanctuary (BFMS), au Ghana, auprès de 18 femelles adultes et subadultes réparties dans quatre groupes sociaux. L'échantillon comprend 130,4 heures de focaux et 588 scans avec lequel nous avons quantifié l'utilisation des strates verticales de l'habitat, le temps consacré à l'alimentation, le taux d'alimentation et les types d'aliments consommés. Les femelles sont classées comme lactantes, gestantes ou cyclantes à partir d'observations comportementales et, pour la gestation, d'une détermination rétrospective fondée sur les naissances. Des modèles linéaires généralisés mixtes ont évalué : 1) l'effet du statut reproducteur sur la strate arboricole utilisée; 2) son effet sur les comportements alimentaires; et 3) si l'association entre statut reproducteur et strate arboricole diffère durant l'alimentation. Les analyses n'ont révélé aucun effet statistiquement significatif du statut reproducteur sur la strate arboricole utilisée, ni sur les variables du comportement alimentaire, telles que la fréquence d'alimentation. De même, la relation entre le statut reproducteur et la strate arboricole utilisée ne variait pas significativement lorsque les femelles s'alimentaient. L'effet du statut reproducteur pourrait ne pas avoir été détectable dans le présent échantillon. Il pourrait également être moins marqué chez cette espèce fortement folivore, dont le régime alimentaire est associé à une compétition principalement par exploitation et, possiblement, à une variation nutritionnelle plus faible entre les aliments consommés.

Poster 7

Mantled Howler Monkey (*Alouatta palliata*) behaviour across different tree canopy levels in a fragmented tropical rainforest

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Habitat fragmentation alters forest structure and resource availability, potentially influencing habitat use and behaviour of arboreal primates. Mantled howler monkeys (*Alouatta palliata*) are relatively resilient to fragmented habitats because of their predominantly folivorous diet, yet changes in canopy structure may still influence their use of forest strata and behavioural activity. This study examined canopy use and activity patterns of mantled howler monkeys in a regenerating forest fragment at La Suerte Biological Research Station, Costa Rica. We expected to find differences in monkey activity in different forest canopy levels. There were 56 observation periods totaling 1,500 behavioral observations over 25 hours, collected using one-minute point sampling. Behavioural categories included resting, feeding, traveling, social interactions, and male howling. Associations among behaviour, canopy level, time of day, and sex were evaluated using Pearson's chi-square tests and generalized linear mixed models. We found significant differences in activity across canopy levels ($p < 0.001$). Monkeys were observed primarily in the middle canopy (60.3%), followed by the upper (36.9%) and lower canopy (2.9%). Resting was the most common behavior overall (59.7%), while feeding occurred primarily in the lower and upper canopy, howling occurred mostly in the upper canopy, and traveling was concentrated in the middle canopy. Behavioural activity also varied with time of day ($p < 0.001$), with resting occurring more frequently in the morning and feeding and traveling occurring more frequently in the afternoon. No significant differences in activity budgets were detected between males and females after excluding male-specific howling ($p > 0.05$). Our findings suggest that regenerating forest fragments provide suitable habitat for mantled howler monkeys, but that canopy structure continues to

influence fine-scale habitat use. Continued monitoring of secondary forests as they mature may improve understanding of behavioural responses to habitat regeneration and inform the conservation of fragmented tropical forests.

Poster 8

Metatarsal phenotypic plasticity in wild and captive chimpanzees

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Chimpanzee metatarsals (Mts) are adapted for arboreal climbing and terrestrial plantigrady, and differ from those of humans in their articular surface shape and patterns of torsion and robusticity. These features are frequently used to reconstruct fossil hominin locomotion, but it remains unclear which ones primarily reflect habitual locomotor behaviour rather than shared ancestry. Here, we quantify proximal and distal articular surface shape, torsion, and cross-sectional properties (TA and J) in the metatarsals of Suzy, a captive chimpanzee raised in Brooklyn in the 1930s. Suzy likely engaged in limited arboreal locomotion and was encouraged to walk bipedally, providing an opportunity to investigate the phenotypic plasticity of metatarsal morphology. We compare Suzy with wild ($n = 20$) and captive chimpanzees ($n = 20$), as well as modern humans ($n = 20$), to determine whether her morphology more closely resembles other captive chimpanzees or shows human-like features potentially associated with bipedalism. Overall, we find that captive and wild chimpanzees show overlapping metatarsal morphology, but that some metatarsals, and some morphological traits show more separation between groups. Where there is morphological separation, Suzy groups with captive chimpanzees. Differences are most apparent in Mts 1, 2, and 5. Captive chimpanzees and Suzy possess a mediolaterally narrower, more concave Mt1 proximal articular surface, greater Mt2 internal torsion, and a more robust Mt5 midshaft than wild chimpanzees. Most consistently, we find that Suzy does not share any morphological affinities with humans, indicating that her foot morphology does not reflect bouts of bipedalism, but rather behaviour associated with a captive lifestyle. While her foot is not diagnostic of any unique locomotion, we do emphasize that a wide range of morphological features (i.e., articular surface shape, torsion, robusticity) may be phenotypically plastic, and reflect behavioural differences throughout life.

Poster 9

Closing the Gap: Investigating the Effect of Habitat Quality on Positional Behavior in Madagascar's Endangered Lemurs

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Madagascar's forests are among the world's most threatened terrestrial ecosystems and continue to experience precipitous deforestation and fragmentation. As Madagascar's endemic lemurs continue to face novel ecological challenges brought about by human disturbance, it is imperative to understand the limits of their behavioral flexibility if we are to design conservation solutions which ensure their long-term survival. For most animals, positional behavior (postural + locomotor behavior) is fundamental to other behaviors that contribute to an organism's fitness, however so far little has been done to investigate how these behaviors may change at the interface of human-driven structural transformation of the environment. To this end, we have quantified daily positional

behaviors from continuous focal follows of Milne-Edwards's sifakas (*Propithecus edwardsi*; a large vertical clinging/leaping taxon) and black-and-white ruffed lemurs (*Varecia variegata*; the largest extant arboreal quadruped among lemurs) living in Southeastern Madagascar. Groups represent populations living in forests historically experiencing varying levels of anthropogenic disturbance. Relative efficiency of positional behaviors is inferred from associated energetic costs referenced from existing examples in the literature. We hypothesize that lemurs living in more disturbed forests will experience greater energetic costs as a result of adapting their positional behavior to more heterogeneous landscapes. If supported, results may aid in identifying populations at greater risk of decline and may inform conservation actions including the design and implementation of species/forest management plans.

Poster 10

Time-of-day and inter-species variation in activity budgets of mantled howler monkeys (*Alouatta palliata*) and Geoffroy's Spider Monkeys (*Ateles geoffroyi*) at La Suerte Biological Field Station, Costa Rica*

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Activity budgets show how primates divide their time and energy among behaviours such as resting, feeding, traveling, and socializing. These patterns may vary with species-specific foraging strategies and changing environmental conditions throughout the day. This study examined whether activity budgets differed by time of day and between mantled howler monkeys (*Alouatta palliata*) and Geoffroy's spider monkeys (*Ateles geoffroyi*) at La Suerte Biological Field Station, Costa Rica. Based on differences in feeding ecology, with howler monkeys consuming less nutrient-rich food than spider monkeys, we predicted that howlers would have a more energy-conserving activity pattern, resting more and traveling less than spider monkeys, and that both species would rest more and travel less at midday compared to other times of day to conserve energy. Behavioural data were collected for 20 hours using instantaneous point sampling at 1-minute intervals during 30-minute focal sessions. Observations were grouped into six 2-hour periods from 05:30-17:30. We used chi-square tests to test whether behaviour was associated with time period within each species and whether overall activity budgets differed between species. Overall activity budgets differed significantly between the two species ($p < 0.001$). Howlers spent more time resting (68%) and less time traveling (13%) than spider monkeys (30.2% resting; 32.1% traveling). Behaviour also differed significantly across times of day for both species (both $p < 0.001$). Howlers rested most at midday (86.8%), while spider monkeys rested most at dawn (61.3%) and showed little resting (8.3%) and high feeding (58.3%) at midday. These results suggest that time of day affects the activity budgets of the two species differently and that these patterns may reflect differences in energetic and foraging strategies between species.

Poster 11

How consistent is animal personality across life stages?: Comparing behavioural consistency in

juvenile and adult captive capuchin monkeys (*Sapajus spp.*)*

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Animal personality is defined by differences in individual behavioural profiles that remain consistent over time in different contexts. In nonhuman primates, it is possible to identify personality dimensions based on associations among observable behaviours. Capuchin monkeys (*Sapajus* and *Cebus spp.*) show behavioural patterns similar to the personality dimensions described in the “Big Five” model used for human personality assessments. However, recent evidence indicates that, in the first years of life, these profiles show higher inconsistency (lower behavioural repeatability) compared to adult monkeys. Here, we explored the consistency of the behavioural profiles of captive capuchin monkeys (*Sapajus spp.*). We predict that adults would exhibit higher behavioral consistency than juveniles. We conducted a preliminary analysis using data from three consecutive trimesters of 20 individuals, 10 adults and 10 juveniles, at the Wildlife Rescue Center of Rio Grande do Norte (CETAS/IBAMA-RN) Brazil between 2016 and 2024.. We analyzed 46 behaviours using Principal Component Analysis (PCA), synthesizing the patterns of association into five behavioural dimensions that explained 42.7% of the total variation. Since this was an exploratory analysis, we have not yet assigned personality constructs to these dimensions. Adults showed moderate to high internal consistency in 3 of the 5 dimensions evaluated (Dim2: ICC = 0.54; $p = 0.003$; Dim4: ICC = 0.56; $p = 0.001$; Dim3: ICC = 0.82; $p < 0.001$). Juveniles, on the other hand, showed moderate repeatability in only one dimension (Dim4: ICC = 0.40; $p = 0.015$). These results indicate that the analytical approach utilized allows for the detection of patterns of behavioural consistency, and revealed greater consistency in adult capuchin monkeys than in juveniles, as predicted. Studies such as this contribute to the understanding of personality development, behavioral plasticity, and ontogeny in primates and may inform individualized welfare and rehabilitation strategies for rescued animals.

Poster 12

Capuchin monkeys on social media: Does image context influence social media user response?

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Social media has become an important source of exposure to wildlife, potentially shaping how people perceive and relate to non-human animals, particularly nonhuman primate species. Social media provides the only form of contact most people will have with wild and rare species. Framing theory proposes that the way information is presented influences how it is interpreted, suggesting that representations of wild animals may elicit different responses from social media users. However, little is known about how these responses vary according to their framing. We investigated the association between representation of capuchin monkeys (*Sapajus spp.* and *Cebus spp.*) on social media and the biophilic values expressed by the audience, which reflect different forms of human relationships with nature and other living organisms. We collected 440 capuchin monkey videos from Instagram and TikTok platforms, using automated web scraping and Portuguese, Spanish, and English search terms (e.g., “macaco-prego,” “mono capuchino,” and “capuchin monkey”). We classified each according to two characteristics of their representations: environmental context (natural, captive, and anthropomorphized) and human presence (absent or present). We will analyze and classify the top five comments for each video according to Kellert’s nine biophilic values: utilitarian, naturalistic, ecologicistic-scientific, aesthetic,

symbolic, humanistic, moralistic, dominionistic, and negativistic, which represent different forms of human-nature relationships. We will also collect engagement metrics, such as comments, likes, and shares. We expect that anthropomorphized representations will primarily elicit aesthetic, humanistic, and utilitarian responses, whereas natural representations will elicit more naturalistic and ecologicistic-scientific responses. We expect captive representations to elicit moralistic and negativistic responses. This study aims to contribute to understanding how wildlife representations on social media relate to different forms of human-animal relationships and public engagement in order to support policies that encourage conservation and peaceful human-wildlife coexistence.

Poster 13

Examining anthropogenic edge effects on mantled howler monkey (*Alouatta palliata*) activity budgets in a fragmented forest in Costa Rica*

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As forest fragmentation creates more boundaries between forests and areas altered by humans, primates are increasingly exposed to edge effects. Edge effects are changes in vegetation, canopy continuity, food availability, and human disturbance near the boundary between forest and cleared or developed land. Comparing activity budgets between the forest edge and interior can reveal how primates respond behaviourally to fragmented habitats. This study examined whether mantled howler monkeys (*Alouatta palliata*) differed in their allocation of time across resting, travelling, and feeding behaviours between anthropogenic edges and forest interiors at La Suerte Biological Research Station, a fragmented forest in Costa Rica. Anthropogenic edges were forest areas with visible human disturbance, such as built infrastructure or clearcut areas, while forest interior areas represented regions without visible human disturbance. We collected 20 hours of behavioural data on individual howler monkeys using 30-minute point samples with behaviour recorded at one-minute intervals. In edge zones compared to interior, howlers spent less time resting (35.4% vs. 75.8% of observed time) and more time travelling (32.2% vs. 11.9%) and feeding (24.7% vs. 3.8%). These differences suggest that reduced canopy continuity and unevenly distributed food resources near forest edges may have required monkeys to travel more frequently between feeding locations, while greater exposure to human activity may have made edges less suitable for prolonged rest. The results suggest behavioural flexibility that may help mantled howlers persist in human-modified forests, underscoring the importance of considering differences within forest fragments in primate conservation.

Poster 14

Beyond the blink of an eye: Evaluating field video methods for AI-assisted behavioural monitoring of free-ranging Japanese macaques

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Traditional wildlife monitoring relies heavily on direct observation and manual video review, approaches that provide rich behavioural detail but become increasingly time- and labour-intensive as datasets grow. Automated video analysis offers a way to extend this work by supporting non-invasive individual identification, tracking, and behavioural monitoring at larger scales. However, the

usefulness of these tools depends strongly on the quality and structure of the footage they receive. This is especially challenging in free-ranging primates, where rapid movement, changing viewpoints and distances, variable lighting, vegetation, occlusion, and interactions among multiple individuals can complicate automated analysis. To address these challenges, we implemented a multi-camera field protocol integrating traditional behavioural sampling with video collection for computer-vision-assisted analysis in a free-ranging population of Japanese macaques (*Macaca fuscata*) at the Awajishima Monkey Center, Japan. During 28 field days in June and July 2026, we collected 162 continuous 35-minute focal-animal samples from 18 juveniles aged 1–5 years, representing 94.5 hours of focal observation, alongside contextual and ad libitum recordings. Video was collected using handheld high-resolution 4K Sony and Panasonic camcorders, three GoPro cameras (Hero Black 7, 13 and Max), including both head-mounted and stationary contextual cameras, and four trail cameras. We are evaluating these methods for factors relevant to downstream computer-vision analysis, including subject visibility and occlusion, proportion of the frame occupied by the subject, viewpoint and body orientation, track continuity, and simultaneous visibility of focal animals, social partners, and interactions. The footage also supports development of a human-in-the-loop workflow for animal detection, tracking, individual identification, and candidate behavioural-event detection, with manual verification retained for socially complex behaviours. By comparing these field-recording strategies, we aim to identify practical considerations for researchers collecting behavioural video for AI-assisted analysis.

Poster 15

Adapting Body Condition Scoring for Wild Arboreal Primates: Struggles Between the Trees Beneath Rwenzori Angolan Colobus (*Colobus angolensis ruwenzorii*)

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Body condition scoring (BCS) is a subjective method of assessment of an animal's muscle and superficial fat composition that has been validated and employed broadly in captive and industrial settings. This assessment forms part of the care protocols for several captive primate species (e.g. colobus, rhesus macaques, hamadryas baboons). With its successful application under such conditions, BCS holds potential application to the assessment of wild primates as a non-invasive measure of welfare. Considering growing conservation concerns, the need to monitor wild primate populations non-invasively makes adapting such tools a worthwhile investigation. However, adapting BCS methods to wild populations presents distinct challenges, particularly for arboreal species observed from the ground, where perspective and visibility constrain the applicability of conventional scoring criteria developed for captive contexts. We developed a species-specific BCS system tailored to the ecological and observational demands of a population of wild Angolan colobus (*Colobus angolensis ruwenzorii*). Drawing on extensive field observations (>400 h) and photographic records of known individuals (N=57), we constructed a 5-point body condition scale calibrated to the specific sightlines available when observing this species from below. We identified three primary viewing configurations that reveal diagnostic body condition indicators: (i) an inferior view of the individual in a folded, or flexed, position, exposing the ventrum and the hindlimbs; (ii) an oblique inferior view of the dorsolateral region while seated, exposing the hip/pelvic region; (iii) an oblique inferior view of the dorsolateral region while standing, exposing the hip/pelvic region. These scoring conditions offer a practical, non-invasive approach for assessing body condition in select wild arboreal quadrupedal primates and provide an example of adapting captive welfare metrics to the observational realities of field-based primatology.

Poster 16

Conservation Education in Southern Madagascar: regular conservation club meetings correlate with learning during a field trip for adolescents

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Field trips to see wild primates are known to be important conservation education tools for adolescents living in primate source countries, while the impact of conservation club membership on learning remains to be studied. We surveyed three groups of adolescents (ages 12-18) before and after a field trip to see wild lemurs at local reserves in Madagascar. Surveys investigated whether membership in a conservation club impacted expressed learning from field trips, and adolescents were either 1) members of a conservation club for two or more years and from a town (Sampoana, n=14), or new members of a conservation club and from 2) a city (Fort Dauphin, n=21), or 3) a village (Berenty, n=14). We predicted that adolescents who had been members of a conservation club for at least two years would answer more survey questions correctly (through written and drawn responses) and in greater detail than adolescents who were new members of a conservation club. We also expected an increase in correct and detailed answers between the pre and post field trip questions. Adolescents who had been long-term members of a conservation club answered significantly more survey questions correctly overall (Mean correct answers 5.0 compared with 2.21 and 3.0), and also significantly improved their number of correct responses after the trip ($p < 0.001$) unlike the village or city respondents. In terms of drawn answers, the town group responded with the most drawings and the most detailed drawings while all respondents seemed to suffer from survey fatigue. We conclude that long-term membership in a conservation club prior to a field trip to see wild lemurs enhances the learning that occurs on such a trip.

Poster 17

Aging Scars from Chimpanzee Accumulative Stone Throwing*

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Accumulative stone throwing (AST) is a unique instance of primate stone tool use in a non-foraging context, where chimpanzees repeatedly throw stones at specific trees resulting in the production of visible wound marks. While it is clear due to the presence of many healed wound scars that some AST sites are used over long periods, it is unknown how long AST sites remain in use and difficult to determine the age of fresh scarring. Although the age of tree scars can be measured using an increment borer or ring samples, these methods are invasive and not practical in remote field settings. This study provides a non-invasive relative dating method for assessing the stages of AST scar healing. In Boé, Guinea Bissau, trees from three species used by chimpanzees for AST (*Pterocarpus erinaceus*, *Bombax costatum*, and *Crossopteryx febrifuga*) were experimentally scarred, and changes in scar colour, moisture, bark healing, and the production of gum were tracked over three months. In Procreate, a colour selection tool was used to extract a representative colour from each image of each scar, resulting in colour scales showing progressive darkening over time. Qualitative descriptions of each macroscopic criterion contribute to the development of a four-stage timeline for scar healing which can be used to assess scars on trees used for AST by chimpanzees. Each tree species exhibited a different response to wounding, indicating that the development of aging profiles must be species specific. Studying the perishable material culture of this rare behaviour brings AST into conversation with other forms of chimpanzee plant-based technology and provides time depth for the behaviour.

Poster 18

The impact of sex differences on the feeding strategies of mantled howler monkeys (*Alouatta palliata*) in a fragmented Costa Rican forest*

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It is important to monitor sex-specific primate feeding strategies in order to identify how species are utilizing their environments. Mantled howler monkeys (*Alouatta palliata*) are flexible frugivore-folivores that depend mainly on neotropical trees to provide the leaves, flowers, fruits, vines, stems and seeds that comprise their diets. Assessing the feeding habits of monkeys at La Suerte Biological Research Station (LSBRS), Costa Rica, a fragmented forest with high howler monkey population density, informs research on how monkey feeding is impacted by sex differences within anthropogenically-damaged environments with high levels of inter-individual competition. We predicted that female howler monkeys would feed for greater percentages of activity budgets compared to males based on their smaller body sizes and greater energetic demands. We also predicted that females would consume more nutrient-rich foods such as fruit and seeds and fewer leaves compared to males. In June 2026, we collected 22 hours of focal point sampling data on mantled howler monkey activity budgets and feeding items, with individual male and female monkeys sampled for 30 minutes each and points taken each 1 minute. Contrary to predictions, males spent a greater percentage of activity budgets feeding than females (19.8% vs. 10%). However, as predicted, females ate a greater percentage of nutrient-rich foods (11.5% seeds and 88.4% leaves) compared to males (100% leaves). Males may have spent a greater percentage of activity budgets feeding in order to compensate for lower-quality diets. Continued monitoring of the sex-differentiated feeding habits of mantled howler monkeys is important for better understanding the local population dynamics and more effectively managing the fragmented forest at LSBRS.

Poster 19

Coordination of Movement Phases in Chimpanzee-Human Signed Conversations

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Turn-taking occurs in human conversations, whether spoken or signed, and is characterized by a systematic exchange that minimizes pauses and overlaps. We used an archived video database to examine turn transitions in American Sign Language (ASL) between two chimpanzees (*Pan troglodytes*) raised through cross-fostering, Moja and Tatu, and their human partners. Using ELAN software, turns were annotated according to movement phases: preparation, stroke, hold, and retraction. Both chimpanzees, most often, did not overlap with their human partner's utterance. We examined which specific movement phase of the human partner predicted the chimpanzee's phase at the same moment, using binomial generalized linear mixed models. We tested 40 phase-comparison pairs for the two chimpanzees, applying a Benjamini-Hochberg correction for multiple comparisons; 20 remained significant after correction. For both chimpanzees, movement phases were significantly associated with those of their human partner. Moja and Tatu were both significantly less likely to

be in their own stroke phase when the human partner was in the preparation, stroke, or retraction phase, compared to when the partner was in the hold phase, suggesting that the chimpanzees avoided starting a new sign while their partner's utterance was still in progress. Tatu was also significantly more likely to not be signing specifically when the human partner was in the stroke phase, consistent with waiting for their partner to finish their utterance. The same trend was present in Moja, but did not reach significance after correction. Overall, our results suggest that chimpanzees adjust the timing of their signed communication based on the movements of their human partner, providing further evidence that this kind of fine-grained coordination of turn-taking may not be unique to humans.

Poster 20

Examining Environment as a Selective Pressure on Cercopithecoïd Vocal Complexity*

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Studies comparing vocal repertoires across taxa can reveal the selective pressures that impact vocal repertoires and vocal complexity. The vocal complexity of cercopithecoïds is thought to be influenced by environmental characteristics such as the presence of dense vegetation and background noise. In this study, the authors compared the vocal complexity of 23 species of cercopithecoïds inhabiting open, closed, and mixed environments to better understand the role of environment as a selective pressure in the evolution of cercopithecoïd vocal complexity. Statistical analyses revealed that cercopithecoïd species inhabiting mixed environments possessed significantly larger vocal repertoires than species in closed environments. This outcome presents new questions about the role of intersecting aspects of environment, social complexity, and phylogeny in the evolution of primate vocal communication and vocal complexity. Comparisons of geladas and closely phylogenetically related baboons suggest that key differences in vocal repertoire size could be heavily influenced by unique characteristics present in a specific local habitat, resulting in adaptation to specific local factors that may not be found within an entire environment.

Human-animal & multispecies relationships

Poster 21

Dental Microwear Analysis of Domestic Dogs from Uivak Point: A Pilot Study of Diet and Human-Animal Interactions*

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1 Université Laval

At Uivak Point, a Labrador Inuit site occupied during the eighteenth and nineteenth centuries, domestic dogs played a central role in transportation, hunting, and mobility. Because their feeding depended heavily on human provisioning and resource management, canine diet can provide insight into human-animal relationships. This pilot study examines whether dental microwear patterns in domestic dogs from Uivak Point (HjCI-9) reveal dietary differences associated with human control over food access and the seasonal organization of Inuit subsistence practices. The sample consists of the first molars of three domestic dogs and one Arctic fox used as a comparative wild canid. Two-dimensional images of the lingual surface of each molar were obtained at 100× magnification using a metallographic microscope. Standardized 10 × 10 µm areas were analyzed using MicroWear, an analytical coding tool implemented in R that semi-automatically quantifies and classifies scratches and pits by frequency, density, length, and width. The dogs were dominated by fine scratches, indicating diets primarily composed of softer foods, but individual variability was observed. The first dog specimen displayed 100% scratches, while the second and third contained 25% and 27.6% pits, respectively, suggesting greater consumption of harder items such as bone or carcass remains. In contrast, the Arctic fox exhibited a pit-

dominated signature, with 57.1% pits, consistent with a more opportunistic and mechanically heterogeneous diet. These differences suggest that dietary variability among the dogs was shaped by the quality and regularity of access to food rather than by independent ecological adaptation alone. Dental microwear can therefore document short-term dietary variation in Arctic domestic dogs, although seasonal attribution requires archaeological and ethnographic context. More broadly, these preliminary results demonstrate the potential of canine dental microwear for investigating how human subsistence strategies and food provisioning structured human-animal interactions in past Arctic communities.

Poster 22

Identifying the Role of Fly Larvae and Decomposing Flesh in Human and Neanderthal Diets Using Stable Isotope Analysis

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Multiple stable isotope studies of Neanderthal remains have observed $\delta^{15}\text{N}$ values that are higher than expected for an omnivore. Some researchers have theorized that Neanderthals may have used maggots and decomposing meat as an important source of food. The presence of maggots in Neanderthal diets would change how we understand their foraging behaviors. Populations that valued maggots as a resource would likely have very different subsistence strategies and migration patterns than those who did not. The storage or caching of meat for the purpose of decomposition and cultivating the larvae would change how and when groups moved. To effectively test this hypothesis, we need reference stable isotope data from the potential food sources (i.e., decomposing meat and maggots). Inaccurate or missing reference data can cause researchers to draw inaccurate conclusions about the diet of an individual or population. To accurately identify the presence of rotting meat and maggots in an individual's diet, it is crucial to first understand how decomposition affects $\delta^{15}\text{N}$, $\delta^{13}\text{C}$ and $\delta^{34}\text{S}$ values. The methods used to analyze the maggots must ensure that the isotopic results reflect the proteins that would be identified in Neanderthal bone collagen. This research uses stable isotope analysis to determine the isotopic composition of maggots and animal tissues throughout the decomposition process and develop pre-treatment protocols for invertebrates. The results create a framework for understanding the role that maggot consumption played in Neanderthal diets.

Poster 23

Inuit bowhead whaling as a driver of fox synanthropy in Inuit Nunangat

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Isotopic analyses of synanthropic animals at archaeological sites can provide insights into human subsistence and environmental stewardship in the past. Small rodents are often investigated in this context, but they may be intrusive to a site. Foxes are opportunistic omnivores that sometimes scavenge from human settlements and have been hunted by Tuniit (700 BC–AD 1400) and Early Inuit (AD 1200–present) in Inuit Nunangat (the Inuit Homeland/the Canadian Arctic and Greenland) for thousands of years. Through stable carbon ($\delta^{13}\text{C}$), nitrogen ($\delta^{15}\text{N}$), and sulfur ($\delta^{34}\text{S}$) isotope analysis, we investigated synanthropy in arctic fox (*Vulpes lagopus*) and red fox (*Vulpes vulpes*) from archaeological sites across Inuit Nunangat. Foxes from sites associated with bowhead whale (*Balaena mysticetus*) hunting had marine-based diets, indicating consumption of anthropogenic foods. This dietary pattern, however, declined during the 20th century with imposed changes to Inuit

subsistence hunting. Our results demonstrate the potential of foxes as indicators of Inuit subsistence and environmental stewardship.

Poster 24

Amelogenin-based sex determination of canids to explore human-dog interactions

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Proteomics-based methods have previously been used for sex determination on archaeological fauna, providing a deeper understanding on sex-based differences in the roles of animals in the past. This is especially useful in species with minimal sexual dimorphism and large amounts of non-sex based independent variation, as is the case with canids, particularly the domestic dog (*Canis lupus familiaris*). Our research assesses the viability of using amelogenin-based sex determination on canids by analyzing 36 modern dog teeth of known sex via Evosep liquid chromatography coupled to a high throughput trapped ion mobility time of flight mass spectrometer (Evosep-LC-timsTOF HT) to identify species-specific sexually dimorphic y-linked (AMELY) and x-linked (AMELX) amelogenin peptides. Our results demonstrate that it is possible to differentiate between male and female canids based on the ratio of AMELY specific peptides relative to the total number of amelogenin peptides identified. The application of this method to ancient canids will allow for further insights into the influence of sex in the economic and cultural role of dogs in ancient populations. Additionally, it will provide insight into sex-based differences in human-dog interactions, deepening our understanding of the roles of dogs in past communities as well as the relationship between humans and dogs through time.

Poster 25

Loosen up the buttons: Tracing cattle origins and the lived experiences of those working at the Antigua Naval Dockyard and Related Archaeological Sites*

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In the 18th and 19th century, bone was commonly used to craft objects in the Eastern North American and Caribbean regions. Evidence of bone button production, typically using cattle ribs, has been recovered from various military sites from this period, specifically within the Antigua Naval Dockyard, in English Harbour. This research is a collaboration with the National Parks Authority of Antigua and Barbuda as part of their 8th of March Project, which investigates the daily lives of the enslaved and free Africans in the Dockyard and surrounding areas. This research aims to determine cattle origins and highlight the contributions of these individuals through stable carbon- ($\delta^{13}\text{C}$) and nitrogen- ($\delta^{15}\text{N}$) isotope analyses on bone button production debris as a proxy for human activity. Analysis of debris from the Dockyard and two nearby army sites suggests diverse livestock management practices, including differences in feeding strategies and climate. When complemented by historical literature, these data offer fresh, nuanced interpretations of the people working and living at these sites and the sites themselves. The majority of the labour that built and sustained English Harbour's military infrastructure was carried out by free and enslaved Africans, including both general labourers and highly skilled artisans. As the Antigua Naval Dockyard was a notable colonial British military harbour in the Caribbean, this interdisciplinary research offers a closer look at the lived experiences and innovative craftsmanship of those who were so critical to its development and success.

Poster 26**An Osteobiographic Approach: The Joint Internment of Two Dogs from a 19th-Century Urban Farmstead in Southern Ontario*****Kayla Mander 1***1 University of Toronto, Department of Anthropology*

From exploitation to companionship, past human-animal relationships have been shaped through diverse interactions between people and animals. Historical zooarchaeology has largely emphasized diet and economy but is increasingly engaging with more complex human-animal dynamics. This project aims to contribute to the emerging literature on animal osteobiographies, a methodology previously predominantly applied to human remains, and to explore human-animal relationships reflected in how animals are treated in life and after death. This project presents osteobiographies of a 19th-century dog burial containing two individuals, excavated at a Euro-Canadian urban farmstead in southern Ontario. Osteological analysis reveals a mature female and male dog, both resembling mastiff- and bulldog-type breeds. Paleopathological analysis revealed distinct health histories. The female exhibited multiple antemortem healed fractures, including four rib fractures and a left metatarsal fracture, alongside degenerative joint disease and osteoarthritis, suggesting advanced age and likely declining mobility associated with pain. The male exhibited diffuse, non-specific lesions on the appendicular elements consistent with a systemic infection. The site's documented livestock presence raises the possibility that the female served as a working dog, with occupational activity potentially contributing to joint degeneration and fractures, while the male may have served primarily as a companion animal. Alternatively, both dogs may have fulfilled similar roles, with their differing pathological profiles reflecting normal variation in health. Archival research at the Ontario Veterinary College indicates that small-animal care received less attention than livestock care prior to the 20th century, although treatments for common ailments, including fractures, were available. Historical accounts also document chloroform use for canine euthanasia. The individuals' burial suggests they died within a relatively short timeframe and raises the possibility of euthanasia due to declining health and mobility. Together, their contrasting pathological histories and intentional burial provide insight into the dogs' lives, treatment, and human-animal relationships.

Poster 27**Animal Vs. Human: North American Species Dental Comparison of Incisors, Canines & Premolars*****Moran, Kaelyn; Dr. Tracy Rogers***1 University of Toronto Mississauga, Department of Anthropology.*

Common animal teeth such as incisors, canines, and premolars, found in North America can look similar to their human counterparts. If teeth are damaged, broken or altered, this can add to the difficulty of differentiating between animal or human dentition. Correctly identifying dentition is important for both archaeological and forensic contexts. In Canadian archaeological contexts, identification of human teeth is useful for ensuring the repatriation of Indigenous ancestors. In forensic contexts, the presence of human teeth can alter the direction of an investigation by increasing or decreasing MNI. This research examines prominent morphological traits of incisors, canines and premolars of human dentition (adult and deciduous) and 5 different common North American mammals: domestic dog, domestic cow, domestic pig, American black bear, and white-tailed deer. The dentition of the 5 North American mammals were compared to corresponding human teeth to identify areas of similarity and difference. This research relied on close visual examination of human dentition, as well as faunal specimens from the Deborah J. Berg faunal collection. All the traits and observations were recorded by section of the tooth (surfaces of crown, cervical neck, sides of root, apical end of tooth) and made into tables, separated by tooth type (incisor, canine, pre-

molars) and species. The most distinct dental traits were found to be: root length and shape, rounded vs squared/flattened roots, size & shape of crown, amount of occlusal typography. Overall, the dentition found to be the least similar to human was domestic dogs. The teeth found to be the most similar to human incisors (adult and deciduous) were white-tailed deer incisors, particularly incisor 1. Photos of each individual tooth type displaying traits were taken and descriptions were made based off the tables and turned into a lab friendly guide poster.

FRIDAY • Poster Session 4 • 1:30–5:00**Health, Aging and Society****Poster 1****Biocultural Interactions Between Tuberculosis and 1918 Influenza: Preliminary Findings of a Potential Syndemic in the Cariboo District of British Columbia*****Boorman, Charlotte; Lianne Tripp***1 Trent University*

A syndemic describes the increased negative health outcomes related to the interaction of two or more diseases. Such outcomes are further worsened due to various factors such as underlying health conditions, socioeconomic inequities, immunity responses, and exposure levels. The potential of a syndemic between 1918 influenza and tuberculosis (TB) has not been quantified within a Canadian context. This study aims to quantify and assess mortality rates and potential syndemic interactions of 1918 influenza and TB among the remote communities in the Cariboo District of British Columbia. To address such objectives, this research considers: Was there a syndemic interaction between the 1918 influenza virus and TB?, Is a syndemic quantifiable?, and Which communities experienced the syndemic? To assess influenza related deaths (influenza or pneumonia) and mortality trends, influenza and TB rates from pre-pandemic (1915-17), pandemic (1918-20), and post-pandemic (1921-23) periods were assessed. Additionally, archival sources such as first-hand narrative accounts, death records, funeral ledgers, and newspaper reports were utilised. Preliminary results indicate that although there may not have been a syndemic of influenza and TB in the Cariboo region, as the death rate of TB did not increase during the pandemic (pre-pandemic: 0.95 per 1,000; pandemic: 0.43 per 1,000; post-pandemic: 0.95 per 1,000; $\chi^2=5.96$, $p=0.051$). There is evidence of a syndemic on an individual level, as 4 of 6 TB deaths during the autumn wave of the pandemic also indicated influenza as a cause of death. Future research will examine other regions of British Columbia, to conduct a province-wide analysis as well as life table analyses to evaluate the contribution of influenza and TB to overall mortality. Through considering both sociocultural and biological influences, this research provides insight into the biocultural experiences of British Columbian populations during the 1918-20 influenza pandemic.

Poster 2**Healthfulness from Lake Erie to Hudson Bay: Analyzing differences in perceived health and wellbeing relative to chronic conditions across Ontario health regions****Madelyn Hertz 1,2; Katherine E. Brent 1,3***1 Western University Department of Anthropology; 2 Western University Bone and Joint Institute; 3 Western University School of Biomedical Engineering*

In 2019, Ontario, with a population of over 16 million individuals and a diverse array of needs, took its first steps in sweeping healthcare reform, announcing the planned creation of a central governing agency known as Ontario Health. Ontario Health is meant to better support the unique healthcare demands present at the regional and community levels. However, regional and demographic health

inequity in Ontario remains a longstanding issue. Furthermore, there is often a disconnect between perceived and 'objective' measures of health when examining quality of daily living. It is possible that these health discrepancies may arise from a lack of awareness, differing outlooks on 'healthfulness,' variable access to care, and psychological well-being, among other causes. We believe that the unique healthcare demands and inequities that arise regionally in Ontario would present as varying levels of agreement between perceived and objective health measures across the province's health regions. Using ordinal logistic regression, this study examines the 2022 public use microdata file (PUMF) from the Canadian Community Health Survey (CCHS) to explore the effects of socio-geography on the agreement between experience of chronic mental and physical conditions (diabetes, mood disorder, musculoskeletal, heart disease or stroke, anxiety disorder) and reported perceived measures of health and wellbeing (perceived health, perceived mental health, perceived life stress) in adult Ontario residents (n= 20,400) across seven health regions. This research highlights the importance of considering geographic context in health equity, and the role that medical-administrative systems have in creating borders around access. Further examination of relationships between perceived and objective measures of health at the more granular Health Unit level may allow for improved resolution and causal inference at a human scale.

Poster 3

Representativeness and the archive: Preliminary findings of Vancouver death certificates from 1917 and 1918*

Sophie Kim 1

1 McMaster University, Department of Anthropology

The archive' is dominantly conceptualized in a broad metaphorical sense. 'Archival data' is typically defined as encapsulating any materials created in their contemporary time and saved in any capacity, be that physical or digital through formal or informal institutions, which are used in our contemporary time as a source of information for research. Archival sources are therefore abundant, versatile, and at times openly and easily accessible for research use. However, there are layers of discernment and social contexts which influence what materials are created, and what is deemed valuable to save. The standard of documentation has evolved over time; this research aims to investigate the representativeness of government archival sources and how this may vary within differing demographics, specifically within minoritized Asian and Indigenous populations. This research utilizes the initial findings of death certificates obtained from British Columbia Archives. All available records for deaths occurring in Vancouver in the months of September to December, during 1917 (n=396) and 1918 (n=1071), were procured and transcribed. Recorded deaths of racial minority groups were compared to other available public sources reporting on population demographics. Results illustrate varying population representativeness as compared to summary statistics obtained from other public sources, reflecting social ideals of the time. In addition, recording forms were found to differ based on race, with Indigenous and Chinese deaths being segregated through death registration or excluded entirely at varying points in time.

Poster 4

Zebras in the Archives: A biocultural analysis of historical rare disease experiences*

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Health Canada defines rare diseases (RDs) as those affecting at most 1 in 2,000 people, including varied conditions such as achondroplasia, cystic fibrosis, and ALS. There are over 7,000 recognized RDs, most of which are genetic, meaning 1 in 12 Canadians is affected by a RD. Some communities are more affected than others, with French Canadians exhibiting high rates of RDs. Contemporary RD literature focuses mainly on diagnosis and

treatment; while genetic tracing has documented the historical presence of RDs in communities, the lived experiences of these conditions remain under-researched. No published literature describes how RDs were understood, lived, and classified before the 20th century in Western contexts. Archival biocultural research can help fill this gap by gathering textual evidence of doctor and patient experiences. This project details the methodology, challenges, and benefits of archival research in studying the ongoing legacy of underrepresented health issues, especially in highly affected communities. The McGill University's Osler Library of the History of Medicine archival fonds catalogue was systematically searched for RD-related terms (e.g., uncommon, hydrocephalus). Challenges to finding these sources include ill-adapted search tools, changing medical terminology, and material availability. Of the over 200 fonds available for consultation, 26 were potentially relevant for RD research, including medical school notes detailing the treatment of rare conditions, student theses purposefully not researching RDs due to the stated lack of applicability of the research, and death notices of fetuses and newborns with "deformities". These findings indicate a medical culture that focused on the good of the many without examining who this philosophy leaves behind. This research demonstrates the richness of archival sources for biocultural health historical investigations of uncommon conditions. This project contributes to the current interest in Canadian research to better understand how people experience their RD diagnostic pathways and related healthcare.

Poster 5

A Potential Neurological Syndrome in the Acadian region, N.B.: Uncovering Cases, Controversies, and Possible Explanations

Metereo, Justine; Lianne Tripp

1 Trent University

In 2025, following the release of a Provincial report into the investigation of a potential neurological disease in the Acadia region of New Brunswick, there was renewed press coverage and public interest into the outbreak of this 'new' disease. It has been postulated that the first case of the disease was diagnosed in 2015, and it was originally suspected to be a prion disease. The Government of New Brunswick, however, in 2020 declared that there is not a novel disease; rather, the increase in reported cases could largely be attributed to one physician's bias. This study aims to answer the following questions: 1. Is/was there an outbreak of a new disease in the Acadian peninsula, and 2. What is the likely etiology of this disease? Using fifty-two sources, including government reports and websites, information on cases were used to explore symptomology, age, sex, and place of residence. Information on patient experiences and controversies that arose during the government's investigations were also revealed. Findings indicate that there were common symptoms which include memory loss/rapidly occurring dementia, muscle spasms, speech issues, sleep disruptions, and changes in personality (e.g., increased anxiety). During the first government investigation, in 2021, the prevalence rate was 0.9 per 10,000. By 2025, the prevalence rate was 7.18 per 10,000, however it has been proposed by a physician to be as high as 16.2 per 10,000 individuals. In 2021, females represented slightly more of the cases at 53% and the average age at diagnosis was 53 years of age. We conclude that it is unlikely that the disease is of prion origins, but that it could be caused by herbicides or cyanobacteria. Additional information is needed to confirm if these factors have contributed to the cases, especially given the geographical clustering found.

Poster 6

Secular change in body composition, but not growth, over 30 years in gymnasts from Upstate New York

Nicola J. Murray 1; Grace Holman 1; Anna D. Nicotra 2; Tamara A. Scerpella 2,3; Jodi Dowthwaite 2; Michael Little 1; Laure Spake 1

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Socioeconomic status (SES), diet, and growth in the US and globally underwent shifts in the second half of the twentieth century. In this study, the anthropometric data from 208 girls aged 6 to 18 years from two cohorts of gymnasts in Upstate New York are examined. This anthropometric data was taken in the late 1970s ($n = 145$, mixed longitudinal) and the late 1990s across the mid 2010s separated into 2 cohorts ($n = 31$, $n = 32$, longitudinal). To examine this data, we implement growth models using SITAR to test for the differences in growth trajectories of height, weight, and body mass index between the cohorts, and multilevel regression models for body fat percentage and muscle mass. At age 9, the mean z-score for height and weight, calculated against the WHO standards, were -0.53 and -0.48 for girls in the 1970s, -0.58 and -0.14 for the 1990s, and -0.33 and -0.23 for girls in the 2000s. The 2000s cohort were to be consistently heavier for age than girls from the 1970s cohorts (average of 3.7kg heavier), though girls from the 1990s were not heavier for age than the 1970s. Differences were also found for height, though these results did not reach statistical significance. Differences in weight between the cohorts appear to be driven by fat mass, which was significantly different between the 1970s and 1990s/2000s cohorts. This group of highly-active girls reflect a nation-wide trends towards higher adiposity after the 1980s despite participating in a sport requiring increasing levels of strength and muscle mass. This was particularly true for the cohort measured in the 2000s rather than the 1990s, suggesting that adiposity may have continued to increase after this decade. However, this increased adiposity was not coupled with changes in the timing or intensity of growth in height.

Poster 7

The Impact of Access to Care and Vaccine Hesitancy on Measles Immunization Rates in Canada*

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Measles, a highly infectious vaccine preventable disease that was eradicated in Canada in 1998, has become increasingly prevalent since 2023, especially among unvaccinated individuals, with the country losing its measles elimination status in November 2025. Measles immunization rates for children in Canada have been below the 95% target since 2022, possibly attributable to disruptions in vaccination programs due to the COVID-19 pandemic, vaccine hesitancy and misinformation, and reduced access to health care. This study examined the association between primary care physician supply (number of family physicians and pediatricians per 100,000 people) and measles immunization rates in seven-year-old children from various regions of Ontario, and the prevalence of parental vaccine hesitancy and measles immunization rates in two-year-old children across Canada using publicly available data. Primary care physician supply and measles immunization rates in seven-year-old children were significantly negatively correlated with each other in several regions of Ontario including Toronto, Central Ontario, Western Ontario, and Northwestern Ontario ($p < 0.05$). Measles immunization rates in two-year-old children were significantly positively associated with parental concern over vaccine side effects ($p = 0.036$). Measles coverage rates for seven-year-old children in Ontario have decreased from 2013 to 2023, with no clear unique trends around during the COVID-19 pandemic.

Physician supply has increased in Ontario from 2013 to 2023. The prevalence of vaccine hesitancy in parents across Canada has decreased from 2011 to 2021. Primary care physician supply and the COVID-19 pandemic cannot explain decreases in measles immunization coverage in children in Ontario, while vaccine hesitancy may explain decreases in measles immunization rates across Canada. These results could have been influenced by the lack of consistent longitudinal data available for measles immunizations rates in children and parental vaccine hesitancy.

Poster 8

The Effects of the 1918 Influenza Pandemic on Infant Mortality*

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1 McMaster University, School of Interdisciplinary Science, PaleoDem lab;

1 McMaster University, Department of Anthropology, PaleoDem lab

The 1918 influenza pandemic led to widespread mortality across the globe, yet not all populations experienced its effects equally. Pregnant individuals were particularly vulnerable to severe influenza-related complications, which could also affect the survival of their infants. Despite this recognition of increased risk, limited research has explored sex-specific differences in infant mortality during the pandemic. This study investigates sex differences in infant mortality during the 1918 pandemic in the United States, focusing on counties within Ohio. Specifically, it asks whether male infants experienced higher stillbirth rates than female infants and whether the timing of infant mortality differed from adult mortality patterns. Approximately 400 infant death certificates from October and November 1918 were transcribed from the publicly accessible database FamilySearch. Data recorded included sex, date of death, and cause of death. The causes were categorized as unknown/none, influenza or pneumonia-related, premature birth, and other causes. Because influenza-related deaths may have been underreported or misclassified, unknown, influenza/pneumonia-related, and premature deaths were grouped as potentially influenza-related outcomes. Chi-square tests of independence, Fisher's exact tests, and two-sample tests of proportions were used to evaluate sex-specific mortality patterns. No significant sex differences were observed in October; however, significant differences appeared in November. Among potentially influenza-related stillbirths, males had a significantly higher stillbirth rate than females in November (11.73% vs. 8.45%; $p = 0.031$). Temporal comparisons also suggest a delayed impact on infant outcomes following the peak in adult mortality. These findings suggest that biological sex differences may contribute to infant vulnerability under increased physiological stress during severe influenza outbreaks. This study contributes to the limited literature on sex-specific infant mortality and aims to clarify the biological and demographic factors that influence vulnerability during pandemics.

Poster 9

Using mouse models to investigate human skeletal aging: addressing ambiguity in bioarchaeological interpretations*

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Throughout the human lifespan, environmental and life-history stressors accumulate within the body, resulting in observable skeletal markers. In bioarchaeology, these markers offer a window into the health and lived experiences of past individuals and populations. However, drawing definitive conclusions remains difficult due to complex bioenvironmental interactions and missing life histories for archaeological remains. Controlled animal models offer an opportunity to investigate these processes while reducing the environmental variation inherent in human populations. This study examined whether skeletal mouse models can clarify the causes of skeletal markers. A sample of 14 mice with documented

life histories, aged 2–25 months, was macerated and processed for further analysis. Histological slides of the femora and lumbar vertebrae were examined to measure cortical thickness, and proportional cortical and trabecular area across the femoral mid-diaphysis, neck, head, and vertebral bodies. Statistical analysis was conducted through linear regression for cortical thickness and beta regression for proportional cortical and trabecular areas. Results revealed that aging induces uniform cortical thinning along the mid-diaphysis of the femoral shaft, whereas cortical thinning at the femoral neck, head, and vertebral bodies was localized. This degradation also drove a significant reduction in proportional cortical area for both the femoral neck/head ($p < .0001$) and lumbar vertebrae ($p = .009$). Proportional trabecular area remained preserved in the femoral neck/head despite significant loss in the vertebrae ($p = .003$). A larger sample size is needed to confirm these trends. These findings demonstrate how mouse models can bridge experimental biology and bioarchaeology, offering a clear and controlled framework to interpret human age-related skeletal markers. Such studies can enable a more conclusive understanding of past human experiences, while offering valuable insights into how lifelong stressors continue to shape bone health in modern populations.

Poster 10

War Exposure and Early Life Adversity: Countervailing effects on reproductive outcomes of Vietnamese survivors of the American War

Delaney J. Glass 1; Signe Svalfors 2; Lydia Philip 1; Tiziana Leone 3; Anwesha Pan 4; Tran Khanh Toan 5; Kim Korinek 6

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The American War in Vietnam remains one of the largest aerial bombing campaigns in military history, protractedly exposing soldiers and civilians to diverse extrinsic mortality threats. Spanning energetic, immunological, and physical stress, Vietnamese survivors of the war experienced diverse dimensions of adversity, each potentially related to unique, lasting effects on female reproductive and sexual health outcomes. However, few studies have examined the impact of diverse early life adversity exposures on adult reproductive outcomes spanning from puberty to menopause, leaving their combined effects on female health poorly understood. This analysis investigates how exposure to energetic, immune and mortality cues specific to the theatre of war impacted age at menarche, first marriage, first birth, and menopause among Vietnamese women who participated in the Vietnam Health and Aging Study (2018 and 2021). Using randomly sampled household data from 999 Vietnamese women exposed to the war during childhood, adolescence, and young adulthood (born 1959 or earlier), we assessed associations between early life adversity and its impacts on female reproductive and sexual health outcomes. We find evidence for countervailing effects of war adversity on women's reproduction: energetic and socioeconomic disadvantages during childhood and adolescence were associated with delays in menarche by several months, while mortality cues, such as aerial bombing, accelerated menopause by seven years. The findings will be discussed in relation to a more recently synthesized two-tiered life history framework, giving an alternative to one-tiered, "fast" and "slow" life history strategies.

Poster 11 (WITHDRAWN)

Dreaming Social During Ramadan

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Dreaming is often theorized as an offline simulation of socially important experiences, yet few studies have examined this

possibility within culturally structured collective practices. Ramadan provides a naturalistic context in which fasting, communal ritual, religious engagement, and altered sleep timing converge. We tested whether social dream content differed from waking experience and changed from before to during Ramadan. Eighteen adults, nine fasting participants and nine non-fasting controls, completed daily dream and waking reports across a 30-day protocol spanning the 15 days before and 15 days during Ramadan. The final dataset contained 230 matched dream-wake pairs (460 reports). Participants also wore Oura Rings and completed measures of religiosity, social support, and social-network size. Reports were analyzed using LIWC-22 social categories. Participant-level dream-wake differences were estimated using paired Hedges' g , and report-level counts were analyzed using Poisson generalized linear mixed models. Dreams contained substantially more social referents ($g = 1.73$, 95% CI [1.00, 2.45]) and overall social-process language ($g = 1.52$, 95% CI [0.84, 2.18]) than matched waking reports. In adjusted models, waking reports contained 64% lower expected social-word counts than dreams (IRR = 0.36, 95% CI [0.33, 0.39], $p < .001$). However, prosocial content did not differ between dreams and waking reports, and no overall main effects of fasting status, Ramadan period, religiosity, or social connectedness were detected. Ramadan nevertheless moderated the relationship between REM duration and social dream content: longer REM duration was associated with reduced social content during Ramadan (interaction IRR = 0.85, 95% CI [0.78, 0.92], $p < .001$). These findings suggest that dreaming retains a robust social signature across changing cultural and physiological contexts, but this signature reflects the presence of social actors more than explicitly prosocial interaction. Ramadan did not produce a uniform shift in social dreaming; instead, sleep-stage associations appeared context-dependent.

Poster 12

Reassessing Social Identity in Andean Mummy Bundles: Mortuary Practice on the Central Coast of Peru

Chloe-Alexandra Vicente-Sarmiento 1; Lucía Watson 2; Sarita Fuentes 3; Denise Pozzi-Escot 3; Jocelyn Williams 4; Andrew Nelson 1

1 Western University; 2 University of Wrocław; 3 Museo Pachacamac; 4 Trent University, Department of Anthropology

This study examined how gender, status, and social identity were materially constituted in mummy bundle burials on the Central Coast of Peru, focusing on five sites spanning ca. 800–1532 CE. Using non-destructive CT and radiographic imaging, this study analyzed internal bundle composition and artifact inclusion in relation to biological sex and age. The results demonstrated a striking asymmetry between age and biological sex as organizing principles. Age emerged as a consistent and statistically significant factor: adults were significantly more frequently associated with metal, adornment, weaving implements, organic materials, and shell, while non-adults were overrepresented in contexts with minimal or no artifacts. Biological sex, by contrast, did not exhibit consistent associations with artifact categories across sites; only one significant relationship appeared (females more frequently associated with weaving implements at the aggregate level). Rather than indicating a rigid system, these findings revealed that age operated as a consistent dimension through which identity was structured, while remaining embedded within context-specific and relational practices. Comparative analysis with the North Coast and Highlands further highlighted that the Central Coast prioritized age-based distinctions as a primary organizing principle in mortuary representation, distinguishing it from regions emphasizing gender or hierarchy. These findings suggested identity was constructed relationally through funerary practice, contributing to decolonial approaches in Andean archaeology.

Molecular anthropology

Poster 13

Optimizing RNA Extraction Strategies to Overcome Inhibition and Maximize Recovery in Ancient Sediment Samples

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Recovering RNA from ancient samples offers the potential to reconstruct past environments, microbial communities, and viral diversity. While studies using formalin-fixed paraffin-embedded tissue, permafrost samples, and dried specimens have recovered informative quantities of RNA, far fewer have attempted to isolate RNA from unpreserved ancient sediments. Even in modern soil studies, RNA's inherent chemical instability and the abundance of inhibitors and RNases in sediments make its recovery particularly difficult. One major obstacle is the large quantity of humic substances present in soil. These compounds are often co-extracted with RNA due to their similar chemical properties and overall abundance, and they inhibit many biological processes important for nucleic acid purification. Because of this, removing humic substances efficiently during the extraction step is critical for isolating authentic, informative RNA molecules. This project aims to optimize methods for isolating highly degraded RNA from ancient sediment samples of diverse ages and depositional environments, including animal excrement, permafrost cores, and human latrine soils. Three RNA extraction techniques will be evaluated, a kit-based method, a high-volume wastewater extraction technique, and an in-house method in combination with various inhibitor-removal steps to assess which yield the most complex extracts with the least amount of inhibition. Our goal is to determine which combinations maximize recovery of short, damaged RNA fragments while minimizing contamination and loss of yield, ultimately enabling more reliable access to sedimentary ancient RNA.

Poster 14

Investigating Medieval Nubian Population History Using Ancient Genome-Wide Data*

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Desert environments pose obstacles to ancient DNA (aDNA) recovery, as heat and aridity accelerate the degradation of DNA. While challenging, recent investigations have successfully extracted and sequenced genome-wide SNPs from individuals recovered from two Christian Period cemeteries at Kulubnarti, Sudan (Sirak et al. 2021). We present additional genome-wide SNP data recovered from the nearby Nubian medieval sites of Ghazali and Old Dongola (Tungul). Medieval Makuria (6th–15th centuries CE) encompassed Lower Nubia and served as a crossroads for trade linking Africa, Eurasia, and regions beyond. Because Ghazali is situated at a distance from the Nile River Valley, its inhabitants were likely pilgrims who travelled there deliberately. Old Dongola, Makuria's capital, held a strategic place on the Nile opposite the mouth of the Wadi Howar, a documented corridor between the Nile Valley and Chad that fed into intercontinental networks such as the Darb al-Arba'in, the forty-day route. We recovered genome-wide SNP data from 11 SNP-enriched (1240K panel) libraries (Ghazali, n=8; Old Dongola, n=3). In principal component analysis against 8

reference populations, most individuals from both sites fall intermediate between African and western Eurasian reference sets, a pattern consistent with admixture but not on its own diagnostic of it. Formal testing with qpAdm supports Levantine and North African (Dinka) models for 7 individuals, with western Eurasian-related ancestry at 93% at Old Dongola and 63% at Ghazali; competing models with Central African and East Eurasian populations were rejected. Given small sample sizes of three and eight, we do not compare genetic diversity between sites. These results complement the Kulubnarti findings of Sirak et al. (2021) and offer a first view of population affinities at a social and biological crossroads between sub-Saharan Africa, North Africa, and the Mediterranean. Ongoing analysis will expand sampling and test whether these patterns hold.

Poster 15

Interpreting Whole Diet from Whole Bone: Developing Minimally-Destructive Methods for Stable Isotope Analysis of Bone and Enamel Bioapatite on EA-IRMS*

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Research in stable isotope analysis has been accomplished using numerous methods that frequently focus on isolating collagen or bioapatite from bone. Isolating bioapatite can elucidate whole diet from carbonate $\delta^{13}\text{C}$, which contrasts from the dietary protein-bias observed in collagen $\delta^{13}\text{C}$. Stable isotope analyses of bioapatite involve acid dissolution of the mineral to evolve CO_2 , which is not compatible with combustion-based elemental analyzer-isotope ratio mass spectrometer (EA-IRMS) devices. Using faunal bones and enamel from modern and archaeological contexts, this research compares the efficacy of various chemicals in the removal of organic material to isolate the mineral bioapatite for analysis on EA-IRMS. The species analyzed cover a range of dietary groups, while chemical treatments include oxidizing, reducing, and chaotropic agents. Developing a protocol that minimizes sample destruction while extracting supplemental data is valuable for palaeoecological studies, as well as for the future refinement of human dietary interpretations. Establishing a method for EA-IRMS is important for providing alternative options for differently equipped laboratories. Ultimately, the results of this research will promote a safe, reliable, and accessible protocol that reduces sample size requirements for use in multifaceted isotopic analyses undertaken by anthropologists and other interdisciplinary researchers.

Poster 16

Climatic Correlates of Ancient DNA Degradation in Globally Distributed Mitochondrial Genomes*

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Ancient DNA decay was traditionally understood primarily as a function of time. However, more recent research has shifted attention toward the burial environment and other diagenetic factors as major predictors of DNA preservation. Temperature, oxidative and hydrolytic damage, and microbial activity accelerate molecular decay through two distinct processes: depurination, or the removal of purine bases from the sugar-phosphate backbone, and cytosine deamination, a hydrolytic-driven process that spontaneously changes cytosine residues to uracils. These signatures are used to authenticate ancient DNA molecules. Since climate is intimately linked with precipitation or aridity, variable climatic conditions provide an opportune model to test DNA degradation globally. To quantify these effects, we analyzed publicly available mitochondrial DNA genomes (n=2018) across a range of climatic environments, classified according to the Köppen-Geiger climate system, and assessed both depurination and deamination rates. Our results

showed that warm, humid environments accelerated fragmentation, resulting in shorter mean fragment lengths (20-32bp) and elevated terminal deamination (~17%) compared to arctic baselines ($r = -.9$, $p = 2.3 \times 10^{-5}$). Preliminary depuration analysis revealed a 2.4-fold increase in fragment-terminating purines, with cleavage concentrated around 5' strand-breaks in purine-rich (adenine and guanine) regions. This pattern appears to track climatic conditions alongside deamination, as single-strand breaks increase the rate of fragmentation and therefore overhang exposure, leading to higher rates of deamination in warmer, wetter regions. Together, these findings suggest that climate is a key driver of DNA degradation. Recognizing these preservation gradients is essential for understanding challenging preservation conditions that constrain the scope of aDNA questions. Identifying optimal sampling environments is also vital for implementing best-practices approaches for poorly preserved human remains, where underrepresented populations are most affected.

Poster 17

Lessons in the Laboratory: A workshop on genetic training and metagenomic analysis in Québec's first bioarchaeological field school*

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The field school setting has long been a place to test and learn new methods in bioarchaeology. However, field schools often run during a short field season, where every day matters for meeting fieldwork goals, leaving little room to introduce emerging methods. Portable long-read sequencers, such as the Oxford Nanopore MinION sequencer, are relatively affordable instruments that could provide a deployable method to collect genomic data within the timelines and budgets of a field season. During Québec's first bioarchaeological field school, we designed and taught a one-day workshop on implementing these methods directly within an active excavation. This workshop focused on sequencing DNA from burial soil rather than human skeletal or dental remains, to recover microbial signatures without further disturbing already affected remains. Students were introduced, from start to finish, to the steps for proper soil sampling at the excavation site to the lab, where they were taught the basics of micropipetting, laboratory instrumentation (e.g., centrifuges, balances, thermocyclers), DNA extraction, library preparation, long-read sequencing, and the bioinformatics of metagenomic analysis using wf-metagenomic, Oxford Nanopore's built-in pipeline, with Kraken2. We discuss student and instructor feedback on the course as well as observations surrounding certain limitations of this approach given the constricted time frame. Our results demonstrate the format's feasibility: students with no laboratory background produced high-quality metagenomic data in a single day, showing that implementing and training on portable long-read sequencing devices can support minimally invasive biomolecular training even for non-specialists. This model has the potential to reshape how bioarchaeological training is delivered, emphasizing the need for biomolecular literacy and post-colonial reflexivity in undergraduate bioarchaeological education, while also suggesting that technical accessibility and ethical accountability need not be pursued separately but can be built into the same pedagogical framework.

Ethics, education & public representation

Poster 18

"I didn't really know what it was": Understanding outreach as a tool to encourage high-school students' engagement with anthropology*

Adrienne Kuziek 1; Carolyn Loos 2; Nathan Wolfe 3; Madeleine Mant 2

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Popular culture often portrays anthropology through adventurous characters and storylines in television shows such as *Bones* and *CSI*, films like *Indiana Jones*, and video games featuring *Lara Croft*. Despite their popularity, mainstream knowledge about the specifics of what anthropology entails is limited in incoming university students. Outreach programs may fill this knowledge gap, providing school-age students with a better understanding of anthropology's scope. Our mixed-methods study examined the recent anthropology outreach landscape and its effects on undergraduates. Anthropology students at the University of Toronto Mississauga were surveyed ($n = 122$), to explore when they first heard of anthropology, why they chose to study anthropology, and their exposure to outreach programs during childhood and adolescence. Approximately three-quarters of respondents ($n = 93$) did not participate in an anthropology outreach session in high school and almost two-thirds of respondents ($n = 73$) did not hear about anthropology until their first year of university. A subset of the surveyed students ($n = 8$) participated in a focus group where they engaged with three outreach activities (i.e., an archaeological mapping exercise, investigating 3D-printed mandible models, and qualitative thematic coding) and were interviewed regarding these activities and their own pre-university outreach experiences. This focus group was coded using NVivo, with core themes of community and holism emerging. Like the survey responses, focus group respondents indicated that their anthropology-specific outreach experience was limited, if it existed at all. Our research found that participants enjoyed the 3D-printed interactive activity the most and gravitated towards anthropology only after taking an introductory anthropology course as a breadth option. The consensus was that introducing anthropology at an earlier age would be beneficial. These results suggest that universities should expand hands-on or field-based outreach opportunities for school-aged students to improve public awareness of anthropology and encourage interest in pursuing anthropological studies.

Poster 19

Recommendations for Decolonizing Human Evolution in Museum Spaces*

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Considering the developmental context of human evolution research enabling and participating in colonial and racist policies, reformation of biological anthropology is currently in process. Museums, also historically fraught with colonial violence, are some of the main spaces that educate the public on our evolutionary history. The longstanding impacts of racist policies, such as segregation, Eugenics, and the dehumanization of individuals under colonial rule and exploitation, still manifest in systematic barriers, both inside institutions, through representation and authority, and in public understanding of human origins today. Biological anthropology and museums therefore must meaningfully engage in decolonizing practices and praxis that shift current Eurocentric narratives. This project explores if and how public-facing human evolution research in museum contexts can meaningfully engage in decolonizing practices. Through semi-structured interviews with eight individuals with expert status in the discipline, such as biological anthropologists, archaeologists, and museum curators/directors, I investigate what current discussions, practices,

and understandings of decolonialism currently look like. Interview results highlight the importance of discussing race, variation, and diversity in museum exhibits, as well as correcting and directly challenging misconceptions, stereotypes, and harmful narratives in these spaces that stem from the field's colonial biases. Additionally, the varied understandings of decolonialism among interviewees also show that further research and a continued commitment to decolonizing the discipline are needed. Human evolution research must be engaged with critically, accurately, and ethically for biological anthropology to remain relevant in public education spaces.

Poster 20

Provenance as Pedagogy: Reconsidering Learning with Osteological Teaching Collections

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As ethical landscapes regarding legacy osteology teaching collections continue to shift in response to societal norms, public concerns, and changes in academic teaching traditions, many academic institutions that hold such collections are now engaged in processes of review and reflection. In response, the University of Alberta Department of Anthropology has undertaken a review of records and a census of ancestors in care as the first step in evaluating the future of the collection and its connection with the biological anthropology program. By reflecting on student engagement with ancestors during the census process, this work considers how active student involvement in stewardship processes, reassociation, and restitution has made positive impacts on those in care and transformed a student's relationship with the discipline. By applying teachings in osteology, taphonomy, forensic anthropology, and integrating archival research, a student intern has considered object itineraries and postmortem agency from a deeply reflexive approach. This work proposes a process by which the department will invite communities to consider the engagement of students, researchers, and the public with the department and the Osteology Collection. ANTHR 386 Human Remains and Society is proposed as a corequisite for students taking courses that involve direct engagement with natural human bone. This course is meant to provide a safe, reflexive space for students to consider how human remains inevitably become intertwined with many aspects of society from ontological and epistemological perspectives. Students will consider the meaning of an ancestor and their own relationship to them while learning to appreciate and embrace the varied nature of this concept. Overall, it is suggested that while teaching collections are intended to serve students, there is room and student interest for both pedagogy and restitution in the biological anthropology teaching spaces.

Poster 21

Murder in the academe: A review of fictional representation in UK and Irish detective or murder mystery television series

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Because of the authors' collective interest in fictitious European detective and murder mystery shows, and our curiosity as to the representation of academics being featured in these shows, we explored the occurrence of such portrayal in murder cases in the UK and Irish television context. The first objective was to establish how often those in academia, including: students, professor/lecturer, researcher/scientist, museum professional, or other university staff, appeared to be involved (as murderers, suspects, victims, or witnesses) in murder cases in episodic or serialised television shows. The second objective was to determine which occupation and disciplines most appeared in murder cases involving academics. To achieve these goals Claude AI was used to aid in generating a list of all fictitious detective or murder mystery shows that are/were UK or Irish productions, beginning as early as

the year 1990. English Wikipedia episode-list article was the first source used to review shows that had full plot synopses. For shows lacking Wikipedia per-episode summaries, episode guide websites were employed. The inclusion criteria involved any death involving a person from a post-secondary institution or holding a post-secondary degree. Preliminary findings from 118 television series, (2,689 episodes /1,866 cases), yielded 101 qualifying cases and 145 episodes involving academics, with frequencies of 5.4% of episodes and cases. The series Katie Pirie had the highest academic murder case/episode occurrence at 50%. Students were the most common occupation, having been featured in 42 academic murder cases, and archaeology was the most common discipline, appearing in 11 cases. We hypothesize the prevalence of students may be a result of their vulnerability when being placed in high tensions and power-dynamic struggles surrounding research, along with the tendency for archaeological research to be in remote locations. Future research will expand to the Scandinavian Noir television series to provide a comparative study sample.

Poster 22

Necroviolence in Al-Bassa, Palestine: A Case Study on Grave Desecration and Resistance

Emma Najm

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Israeli desecration of Palestinian graves throughout Gaza, the West Bank, and the Occupied Palestinian Territories is a longstanding common occurrence which predates the current conflict. In 2011, Israeli settlers exhumed several Palestinian graves located in my community's village, Al-Bassa, and used their gravesite as a garbage disposal. Since then, the location of the remains are unknown. This research poster serves as a case study on how necroviolence is utilized by Israeli settlers and the Israeli state to perpetuate colonial oppression while examining and highlighting how my role as both simultaneously the researcher and impacted community member shapes the nature of the research. I analyze videographic evidence of the desecrated graves and human remains to estimate the MNI and examine how I navigated my reaction to these acts as an impacted descendant. Ultimately, this research shows how Israeli settlers rely on the tools of necroviolence: humiliation, perpetual grief, and the flaunting of impunity to enact said violence, and how the subversion of the traditional researcher/community dichotomy transformed the research into not only vital documentation of crimes, but an act of resistance.

Poster 23

Buried Lives: Commemorating Valley View Residents

Bryn James-Cavan

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"If there were family, I'm sure they would have been informed. But remember, for a lot of families, they walked away. So, I would think there are far more than 100 graves". The Valley View Centre (formerly known as the Saskatchewan Training School) was an institution for people with intellectual disabilities. Built on 800 acres outside Moose Jaw, SK, it was open from 1955-2019. At its height in the 50's-70's, it housed approximately 1500 residents who ranged in age from infant through to elderly. During the first 30 years, the primary goal of the institution was to treat "mental retardation" in the province. At the edge of the property is the institution's cemetery where 157 former residents are buried. All death dates are in the 60's and 70's. With the closure of Valley View in 2019, a plaque was installed in the cemetery to memorialize the institution. Now, the cemetery sits hidden with no road access, next to a busy highway. It's overgrown and crumbling. What factors have contributed to the creation of the cemetery and its place as a site of commemoration? To answer this question, I rely on data gathered from my interviews with former staff, residents, and their family members, in addition to observation of the cemetery's grounds. I argue that eugenic stigma led to the cemetery's creation and

persists in how those close to the institution dismiss its importance. The exclusion of those buried from efforts to remember the institution creates an incomplete version of its history, one that fails to acknowledge its darkest parts.

SATURDAY • PASC Poster Symposium • 8:30–4:00

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Poster 1

The transverse arch of the foot: morphology and variation in Simiiformes

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The human foot is often described as having longitudinal and transverse arches. The longitudinal arch, because it is unique to humans, has received considerable attention, whereas the transverse arch has rarely been studied. Researchers have proposed that non-human primates either lack a transverse arch or that some primates do have one. Given these contradictory observations, it is difficult to determine whether the transverse arch is a derived trait in humans. Also, since arch height can only be measured in complete feet, the morphology in fossil taxa is unknown. Here, we document variation of the transverse arch in Simiiformes. We also investigate whether the morphology of the intermediate and lateral cuneiforms can provide clues for estimating arch height. Our sample consists of 21 computed tomography scans of articulated feet representing 15 species. We measured plantar and dorsal arch height, as well as the relative thickness of the arch at the tarsometatarsal joint. We also measured the degree of convergence of the medial and lateral surfaces of the cuneiforms. Our results show that the transverse arch does not vary when measured dorsally. It varies primarily in plantar height and thickness. Primates that frequently engage in leaping tend to have higher and thinner arches, whereas larger and more terrestrial species tend to have lower and thicker arches. The medial and lateral surfaces of the intermediate cuneiform tend to be more convergent with an arch that is higher and thinner. Also, the lateral cuneiform tends to be more rectangular when the intermediate cuneiform is profoundly wedged between the lateral and medial cuneiform. However, these correlations are not sufficiently strong to accurately estimate arch morphology from isolated bones. These results contribute to a better understanding of transverse arch variation and provide a basis for further investigation in extant and fossil primates.

Poster 2

Quelles enthèses des mains pour étudier la locomotion ?

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Les études sur les enthèses de la main de ces vingt dernières années se sont principalement focalisées sur les capacités de manipulation des différents Hominines et leurs types d'activités manuelles régulières. Aucune étude, à la connaissance de l'auteure, ne porte sur l'étude des enthèses afin de mieux comprendre la locomotion de ces espèces et les différences entre les espèces Hominoïdes actuelles et fossiles qui en découlent. Ma présentation porte donc sur une analyse préliminaire des enthèses des os des mains d'Hominoïdes africains, afin de mieux comprendre quelles sont les attaches musculaires qui apportent le plus de différences entre les divers modes de locomotion. Pour cela, j'applique la méthode V.E.R.A afin d'isoler les enthèses de chaque muscle et de les mesurer. Mon échantillon préliminaire se compose de 10 chimpanzés/bonobos, 10 gorilles et 10 humains modernes dont j'ai numérisés les métacarpes et phalanges. J'ai ensuite mesuré les enthèses associées à tous les muscles de la main et je les ai contrôlés pour la taille, afin de pouvoir comparer

les espèces et les sexes entre eux. Ces mesures sont ensuite analysées par des méthodes de statistiques exploratoires multivariées afin de sélectionner celles qui influencent le plus la répartition des individus selon leur mode de locomotion. Les résultats préliminaires montrent que les mesures qui influent le plus sont celles en lien avec les muscles fléchisseurs des phalanges, les muscles interosseux et lombricaux, les muscles liés à l'opposition du pouce et les extenseurs du poignet.

Poster 3

Morphogeometric study of craniofacial morphology related to third molar agenesis in humans*

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Congenital agenesis of third molars (M3) is among the most frequent dental variations in modern humans, with prevalence rates reaching 40%. Because M3s develop late and exhibit low canalization, evolutionary developmental biology frames their absence as a potential phenotypic biomarker of overall cranial architecture, situated at the interface of developmental vulnerability and evolvability. My study aims to determine the nature of this association by contrasting a local null hypothesis, restricting phenotypic shifts to odontogenesis, with an integrated development hypothesis, where complete M3 absence reflects systemic structural modifications driven by recent cultural and masticatory transformations in *Homo sapiens*. Current literature relies heavily on 2D reductionist metrics that describe independent linear correlations, leaving this global hypothesis untested. This project serves to disentangle these competing models using a 3D geometric morphometrics triangulation strategy to compare craniofacial shape, assess intermodular covariance patterns, and locate individual distributions within the morphospace. My protocol uses anonymized 3D CBCT scans from at least 150 participants aged 16 or older to ensure reliable diagnosis. Three-dimensional landmarks and semi-landmarks will be collected across four anatomically defined modules: basicranium, maxilla, mandible, and the dentoalveolar complex. Shape variation and multi-modular integration will be evaluated in R. Structural data will undergo generalized Procrustes analysis and Euclidean Distance Matrix Analysis, while multivariate regressions will isolate size-associated allometry using centroid size alongside age, sex, and ancestry as covariates. Group shape differences and morphospace distribution will be mapped via permutational Procrustes ANOVA/MANOVA and cross-validated discriminant analyses (LDA/PLS-DA). Finally, intermodular integration will be tested using RV coefficients. Moving beyond descriptive analytics, this bioanthropological study provides an explicit framework to test coordinated dental-skeletal interactions. We expect to clarify whether M3 agenesis alters global covariance patterns or represents a local variation, offering new insights into the developmental constraints and evolutionary trajectories structuring modern human facial variation.

Poster 4

New Life for Old Data: Improving Access to Hominin Fossil Heritage through Digitization of the Sperber Collection*

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The Sperber Collection is an archive of australopithecine dentognathic radiographs, photographs, and data sheets (n=156) collected in South Africa in 1969-70 by University of Alberta Dentistry Professor Emeritus Geoffrey Sperber (BSc BDS MS PhD FICD Dr Med Dent (Hon causa) FRSSAf). The Collection preserves imaging, morphologic, and metric observations of fossils from several important paleoanthropological sites (Swarthkrans, Sterkfontein, Makapansgat, Taung) that formed the basis of Sperber's doctoral thesis (1973) and part of the Atlas of Radiographs of Early Man (1982) with M.F. Skinner. Despite its

ongoing scientific value, the Collection remains as a deteriorating physical archive that is relatively inaccessible for research. While modern methods, including micro-computed tomography, have since been used to study many of the fossils, historical measurements, radiographs and photographs are disconnected from these newer records. This results in an absence of a more comprehensive public digital repository. Our project follows a documented protocol using media-specific scanning parameters and a standardized naming convention that improves the findability of Sperber's original images and observations. We are using AI-enabled OCR extraction of handwritten observations and measurements to improve the usability of the datasheets for future researchers. Our end goal is to digitize the collection and make its contents available through the Human Fossil Record.org online archive (M.M. Skinner). By reconnecting historical and modern records, we seek to expand scientific accessibility and support reproducibility to aid in future analyses in dental anthropology. Our work examines how revisiting historical documentation can enhance and extend the scientific life of a Collection and improve access to heritage resources.

Poster 5

Split Open: The Study of Ochre Applicators at Caverna delle Arene Candide

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This project investigates the creation and use of fractured limestone pebbles bearing ochre residue from late Epigravettian burials (12-9,000 cal. BP) at the site of Caverna delle Arene Candide, northwestern Italy. While the Italian Epigravettian is generally characterised by a decrease in grave goods and ochre use, understood as a simplification of the preceding Gravettian tradition amid climatic instability, Arene Candide and Liguria more broadly stand out as notable exceptions. For this reason, analysing the contemporary symbolic use of ochre and associated objects in funerary practices and rituals, with particular attention to the role of these mortuary artefacts, offers critical insight into the regional and social adaptations to a sudden climate change observed during the Pleistocene to the Holocene transition, with implications for understanding human responses to rapid climate change today. The project combines qualitative analysis of the limestone pebbles recovered both in 2009-11 and 2024 field seasons with experimental archaeology aimed at replicating their manufacture, use, and archaeological use-wear. By comparing experimentally produced wear traces with archaeological specimens, the project seeks to reconstruct the sequence of actions undertaken during funerary rituals and assess whether these pebbles functioned primarily as ochre applicators, curated ritual objects, or both. A comparative examination of the experimental results with burial assemblages across the Ligurian-Provençal Arc and other Italian Epigravettian sites will establish whether these practices reflect localised traditions or part of a broader pattern of symbolic continuity and adaptation at the end of the last Ice Age. This project will deepen our knowledge of the Italian Epigravettian mortuary behaviour as well as contribute to the dialogue on prehistoric and contemporary cultural responses to environmental change.