

ELIZABETH M ST CLAIR

CURRICULUM VITAE

Center for Functional Anatomy and Evolution
Johns Hopkins University School of Medicine
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ACADEMIC POSITIONS

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| 2020-present | Assistant Professor, Center for Functional Anatomy and Evolution, School of Medicine, Johns Hopkins University |
| 2016-2020 | Instructor, Center for Functional Anatomy and Evolution, School of Medicine, Johns Hopkins University |
| 2015-2016 | Postdoctoral Fellow, Center for Functional Anatomy and Evolution, School of Medicine, Johns Hopkins University |
| 2012-2014 | Associate in Research/ Postdoctoral Associate, Duke University |
| 2009 | Clinical Assistant Professor, SUNY Downstate Medical Center |

EDUCATION

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| 2012 | PhD, Anthropology, Stony Brook University |
| 2007 | MA, Anthropology, Stony Brook University |
| 2002 | MSc (Distinction), Human Evolution and Behaviour, University College London |
| 2000 | BSc (Hons), Speech Sciences, University College London |

RESEARCH

PUBLICATIONS

Peer reviewed articles

St Clair EM, Reback N, Perry JMG. 2018. Craniomandibular variation in phalangeriform marsupials: functional comparisons with primates. *Anatomical Record* 301: 227–255.

St Clair EM, Boyer DM. 2016. Lower molar geometric shape and size in prosimian and platyrrhine primates. *American Journal of Physical Anthropology*, 161: 237–258.

Perry JMG, **St Clair EM**, Hartstone-Rose A. 2015. Craniomandibular signals of diet in adapids. *American Journal of Physical Anthropology*, 158: 646–662.

Perry JMG, Bastian M, **St Clair EM**, Hartstone-Rose A. 2015. Maximum ingested food size in captive anthropoids. *American Journal of Physical Anthropology*, 158: 92–104.

Horvath J, Ramachandran GL, Fedrigo O, Nielsen WJ, Babbitt CC, **St Clair EM**, Pfefferle LW, Jernvall J, Wray GA, Wall CE. 2014. Genetic comparisons yield insight into the evolution of enamel thickness during human evolution. *Journal of Human Evolution* 73: 75–87.

Winchester JM, Boyer DM, **St Clair EM**, Gosselin-Ildari AD, Cooke SB, Ledogar JA. 2014. Dental topography of platyrrhines and prosimians: convergence and contrasts. *American Journal of Physical Anthropology* 153: 29–44.

Ledogar JA, Winchester JM, **St Clair EM**, and Boyer DM. 2013. Diet and dental topography in pitheciine seed predators. *American Journal of Physical Anthropology* 150: 107–121.

Patel BA, Seiffert ER, Boyer DM, Jacobs RL, **St Clair EM**, and Simons EL. 2012. New primate metatarsals from the Paleogene of Egypt and the origin of the anthropoid big toe. *Journal of Human Evolution* 63: 99–120.

Boyer DM, Lipman Y, **St Clair EM**, Puente J, Patel BA, Funkhouser TA, Jernvall J, and Daubechies I. 2011. Algorithms to automatically quantify the geometric similarity of anatomical surfaces. *Proceedings of the National Academy of Sciences, USA* 108: 18221– 18226.

Bunn JM, Boyer DM, Lipman Y, **St Clair EM**, Jernvall J, and Daubechies I. 2011. Comparing Dirichlet Normal surface energy of tooth crowns, a new technique of molar shape quantification for dietary inference, with previous methods in isolation and in combination. *American Journal of Physical Anthropology*, 145: 247–261.

St Clair EM, Boyer DM, Bloch JI, and Krause DW. 2010. First records of a triisodontine mammal, *Goniacodon levisanus*, in the late Paleocene of the northern Great Plains, North America. *Journal of Vertebrate Paleontology*, 30: 604–608.

St Clair EM. 2007. Sexual dimorphism in the pelvis of *Microcebus*. *International Journal of Primatology*, 28: 1109–1122.

Conference presentations (abstracts)

St Clair EM, Boyer DM, Beard KC. 2021. Vestigial structures in evolutionary biology and a reassessment of the dental reduction sequence in Plesiadapidae. *Abstract accepted for presentation at the Society for Vertebrate Paleontology Annual Meeting October 2021.*

St Clair EM, Perry JMG. 2020. Variation in masticatory muscle attachment areas: exploring potential relationships to dental wear and allometry in *Otolemur* and *Saimiri*. *American Journal of Physical Anthropology*, S69, 272. *Conference cancelled due to COVID-19.*

St Clair EM, Perry JMG. 2018. Variation in relative condyle height in primates. *American Journal of Physical Anthropology*, S66, 263 -264.

St Clair EM. 2016. Geometric morphometric analysis of strepsirrhine upper second molars. *American Journal of Physical Anthropology*, S62, 300.

De Vries D, Winchester JM, **St Clair EM**, Boyer DM. 2016. Dietary inference from P4 topography in prosimians. *American Journal of Physical Anthropology*, S62, 127.

Winchester JM, **St Clair EM**, and Boyer DM. 2015. Folivores, frugivores, and *Theropithecus*: Diet and dental topography in cercopithecoids. *American Journal of Physical Anthropology*, S60, 327-328.

Kristjanson HL, Perry JMG, and **St Clair EM**. 2015. Implications of occlusal contacts in Caenopithecids (Adapiforms) and extant Lemuriforms. *American Journal of Physical Anthropology*, S60, 195-196.

St Clair EM, Babbitt CC, Wray GA, and Wall CE. 2013. Enamel thickness measurements and reconstruction of the ancestral morphotype in primates. Presented at the 73rd meeting of the Society of Vertebrate Paleontology, Los Angeles, October 2013.

St Clair EM. 2013. Macroevolutionary comparisons of ecological disparity and craniodental disparity in platyrrhine and strepsirrhine primates. *American Journal of Physical Anthropology*, S56, 261–262.

Gosselin-Ildari AD, Boyer DM, Steiper ME, and **St Clair EM**. 2012. An assessment of Bayesian methods for ancestral state evolution. *American Journal of Physical Anthropology*, S54, p. 154.

St Clair EM. 2011. Geometric morphometric analysis of platyrrhine lower molar shape. *American Journal of Physical Anthropology*, S52, p.282.

Boyer DM, Cooke SB, Bunn JM, and **St Clair EM**. 2011. Dental topographic variables (Orientation Patch Count, Relief Index, Dirichlet Energy) of platyrrhine second mandibular molars. *American Journal of Physical Anthropology*, S52, p. 95.

Ledogar JA, Bunn JM, **St Clair EM**, and Boyer DM. 2011. Dental topographic analysis of pitheciine (*Pithecia*, *Chiropotes*, *Cacajao*) second mandibular molars. *American Journal of Physical Anthropology*, S52, p.196.

Boyer DM, Lipman Y, **St Clair EM**, Puente J, and Jernvall J. 2010. An algorithm using intrinsic geometry of anatomical structures for automatic identification of homologous features. *Journal of Vertebrate Paleontology*, October 2010 online sup., 64A.

St Clair EM, Boyer DM, Baab KL, and Perry JMG. 2010. Geometric morphometric investigation of size and shape in prosimian molar morphology: incorporating phylogeny into allometric analyses. *FASEB J*, 24, 449.2.

St Clair EM, Boyer DM, and Perry JMG. 2010. The evolution of molar shape diversity in primates and euarchontan mammals: a geometric morphometric approach. *American Journal of Physical Anthropology*, S50, p. 221-222.

St Clair EM. 2009. Morphological disparity in the cranium and dentition of "prosimian" primates. *American Journal of Physical Anthropology*, S48, p.245.

St Clair EM, Boyer DM, Bloch JI, and Krause DW. 2008. New records of *Goniacodon levisanus* (Mammalia, Triisodontinae) from the late Paleocene of the Crazy Mountains Basin, Montana. *Journal of Vertebrate Paleontology*. 28 (Sup. to Issue 3) p. 147A.

St Clair EM. 2006. Sexual dimorphism in the pelvis of *Microcebus*. *American Journal of Physical Anthropology*, S42, p. 170.

St Clair EM, Krause DW, and Boyer DM. 2005. Pantodonts (Mammalia) from the early Tiffanian (Paleocene) of the Crazy Mountains Basin, Montana. *Journal of Vertebrate Paleontology*, 25 (Sup. to Issue 3), p. 118A.

St Clair EM. 2005. Sexual dimorphism in the anthropoid os coxae. *American Journal of Physical Anthropology*, S40, p.196.

News/reviews articles

St Clair EM, and Baab KL. 2009. Throwing light on early human evolution in Africa. *Evolutionary Anthropology*, 18: 121–122.

Erb WM, **St Clair EM**, and Jonas M. 2006. From syntax to synapomorphies. *Evolutionary Anthropology*, 15: 119–120.

RESEARCH FUNDING AND AWARDS

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| 2012 | NSF Biological Anthropology Research Grant “Primate dental topographic and geometric morphology” <i>US\$111,106</i> (Co-PI, with Doug M Boyer [PI]) |
| 2010 | Leakey Foundation General Research Grant “Digital evolutionary morphology of the primate dentition” <i>US\$14,000</i> (Co-Investigator, with Doug M Boyer [PI], Jonathan MG Perry, Aryeh Grossman) |
| 2009 | American Society of Mammalogists, Grant in Aid of Research <i>US\$1000</i> |
| 2009 | Geological Society of America, Graduate Research Grant <i>US\$3000</i> |
| 2008 | Research Foundation, Stony Brook University, IDPAS Research Award <i>US\$500</i> |
| 2003-2012 | Stony Brook University, full tuition scholarship |

ACTIVE RESEARCH AREAS

Comparative anatomy of the mandible in primates and other mammals

Comparative anatomy of the hyoid, larynx, and tongue in primates and other mammals

Ecological signals in the shape of the dentition in primates

Evolutionary radiation of Paleocene and Eocene primates and primate-like mammals

PROFESSIONAL MEMBERSHIPS

American Association of Physical Anthropologists

American Association for Anatomy

TEACHING

EDUCATIONAL LEADERSHIP

2020-present Director, Master of Science in Anatomy Education program, Johns Hopkins University
2019-2020 Co-Director, Master of Science in Anatomy Education program, Johns Hopkins University

MENTORING

External Committee Member: Ethan Fulwood (PhD, Evolutionary Anthropology, Duke University)

Primary research paper supervisor and course instructor for Masters of Science in Anatomy Education students (4 in progress, 9 completed)

2022 cohort: Nina Baltimore, Quinesha Burden, Sri Kondabattula, Song Park

2021 cohort: Kelley Cooper, Marli Crabtree, Isaiah Dorendorf, Brian Martin, Hannah Mohr, Eric Roman

2020 cohort: Grace Jull, Dallas Kokoska, Aracely Martinez

TEACHING AREAS / INTERESTS

Human anatomy, Cranial anatomy
Osteology and functional anatomy of the skeleton
Primate evolution
Mammalian biology and evolution
Sensory systems and communication in vertebrates
Dental morphology, development, and function

TEACHING EXPERIENCE

Anatomy

Instructor of record: Seminar, Johns Hopkins University (Spring 2020 to date) Teaching Practicum in Anatomy, graduate students

Instructor of record: Lecturer, lab instructor, Johns Hopkins University (Spring 2020 to date) Advanced anatomical dissection and research, graduate students

Instructor of record: Lecturer, Johns Hopkins University (Spring 2018 to date) Human Anatomy, undergraduate students

Team taught: Lecturer, lab instructor, Johns Hopkins University (Summer 2015 to date) Scientific Foundations of Medicine - Human Anatomy, lectures and cadaver dissection

for first-year medical students and graduate students

Team taught: Asst. Course Director, lecturer, lab instructor, Johns Hopkins University (Summer 2017 to date) Summer Anatomy Institute, lectures and model/ plastination/ prosection lab for undergraduates and recent graduates

Co-Instructor, Discussion leader, Johns Hopkins University (Spring 2016). Primate Dietary Adaptations, seminar for PhD students in Functional Anatomy and Evolution.

Instructor of record: Lecturer, lab instructor, SUNY Downstate Medical Center (Summer Human Gross Anatomy, cadaver dissection for occupational therapy students

Lab instructor, Stony Brook University

The Body, cadaver dissection for medical students (Fall 2009)

Human Anatomy, cadaver dissection for allied health students (Summer 2006, 2007)

Human Anatomy, osteology and anatomical models for undergraduate students (six semesters between 2007 and 2012)

Anthropology

Lab instructor, Stony Brook University Introduction to Physical Anthropology, undergraduate students (2003)

Teaching assistant, Stony Brook University Human Demography, undergraduate students (2004)

SERVICE

REVIEWER

Journals:

Anatomical Record

Evolutionary Anthropology

International Journal of Primatology

Journal of Visualized Experiments

Journal of Mammalogy

Grants:

Leakey Foundation

NSF (Biological Anthropology) senior proposal review

NSF GRFP panelist

COMMITTEES

MA-PhD Committee, Johns Hopkins School of Medicine 2020-date, Masters subcommittee 2020-date

Member, Program Committee, American Association of Physical Anthropologists 2018-2020, 2021-present

Student member, IDPAS Admissions Committee, Stony Brook University 2010-2011

Student member, IDPAS Executive Committee, Stony Brook University 2009-2010

President/ Secretary/ Participant, Functional Morphology Group; a graduate student and faculty weekly reading/ discussion group, Stony Brook University 2004-2009

ADDITIONAL TRAINING AND RESEARCH EXPERIENCE

Computing for data analysis. 2012 Introductory programming and data analysis in R - online Coursera.org course, convened by Roger D Peng (Johns Hopkins University). Certificate of completion earned with distinction.

AnthroTree, UMass Amherst: Training in phylogenetic statistical methods, convened 2011 by Charles Nunn (Duke University).

Research

- Visiting researcher for dental molding, caliper measurements, specimen photography anatomical description: American Museum Natural History, Department of Mammalogy; American Museum of Natural History, Department of Vertebrate Paleontology; British Museum (Natural History), Department of Mammalogy; British Museum (Natural History), Department of Palaeontology; Museum of Comparative Zoology, Harvard, Department of Mammalogy; Powell-Cotton Museum, Kent; United States National Museum (Smithsonian) Natural History, Department of Mammalogy (2001 – present)

- Curation (specimen storage, cataloging, identification) of Paleocene fossil mammals from the Crazy Mountains Basin, Montana as research assistant to David W. Krause, Stony Brook University (2004 – 2006)
- Compilation of an online photographic database of cetacean skeletal morphology, graduate assistant to Maureen O’Leary, Stony Brook University (2005)
- PhD dissertation research on morphological disparity in the primate skull, mandible, and molar dentition, supervised by William L. Jungers, Dept of Anatomy, Stony Brook University (2012)
- MSc thesis research on sexual dimorphism in primate ossa coxae, supervised by Leslie Aiello, Dept of Anthropology, University College London (2002)
- Undergraduate honours research on acoustic analysis of chimpanzee vocalizations, supervised by Stuart Rosen, Dept of Phonetics and Linguistics, University College London (2000)

Fieldwork

- Crazy Mountains Basin, Montana (Paleocene), Prospecting, surface and quarry collection of vertebrate fossils sampling across North American Land Mammal “Ages” PIs: Jon Bloch, Doug Boyer (2004-2005)
- Bighorn Basin, Wyoming (Paleocene/ early Eocene). Prospecting and surface collection of vertebrate fossils to investigate faunal changes during the Paleocene- Eocene Thermal Maximum. PIs: Jon Bloch, Doug Boyer (2004-2010)
- Bighorn Basin, Wyoming (early Eocene). Prospecting and surface collection of vertebrate fossils from Wasatchian sediments. PIs: Kenneth D Rose, Amy Chew (2013)
- Bridger Basin, Wyoming (middle Eocene). Prospecting, surface and in situ collection of vertebrate fossils from Bridgerian deposits. PIs: Jon Bloch, Doug Boyer, Gregg Gunnell (2013)