

Mark Webster

Date of Birth: September 30th, 1974
Address: Department of the Geophysical Sciences
University of Chicago
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EDUCATION

2003: University of California, Riverside (U.S.A.). Postdoctoral research position with P. M. Sadler (January to July)
1998-2002: University of California, Riverside (U.S.A.). Ph.D. Degree. *Ontogeny and Phylogeny of Early Cambrian Olenelloid Trilobites, with Emphasis on the Late Dyeran Biceratopsidae*. (Degree conferred March 2003)
1996-1998: University of California, Riverside (U.S.A.). M.S. Degree. *Paleobiologic Aspects of Olenelloid Trilobites from the Uppermost Dyeran C-Shale Member of the Pioche Formation, Nevada*. (August 1996 to August 1997 spent at the University of Cincinnati, Ohio)
1993-1996: University of Manchester (England). First Class B.Sc. Degree with Honors in Biology and Geology

ACADEMIC POSITIONS

2012-present: University of Chicago (U.S.A.). Associate Professor with tenure, Department of the Geophysical Sciences, and Committee on Evolutionary Biology
2004-2012: University of Chicago (U.S.A.). Assistant Professor, Department of the Geophysical Sciences, and Committee on Evolutionary Biology
2003-2004: University of California, Los Angeles (U.S.A.). Assistant Professor, Department of Earth and Space Sciences

PEER-REVIEWED PUBLICATIONS

In Preparation. Hughes, N. C., P. S. Hong, M. J. Hopkins, J.-b. Hou, A. Minelli, J. Peng, T.-Y. Park, J. R. Paterson, M. Webster, X.-G. Zhang, X.-L. Zhang, and G. Fusco. Developing trilobite ontogeny: Suggestions for a methodological standard. To be submitted to *Journal of Paleontology*, April 2020.

In Revision. Landing, E., M. Webster, A. Andreas, and S. S. Bowser. Late Early Cambrian persistence of Iapetan rifting, continental slope anoxic-oxic intervals, and “Hawke Bay Events” in NE Laurentia. *Geological Magazine*.

In Revision. Moore, J. L., S. M. Porter, and M. Webster. First record of cambroclave sclerites from the mid-Cambrian of Laurentia. *Acta Palaeontologica Polonica*.

In Revision. Winston, M. E., S. L. Price, C. S. Moreau, and M. Webster. Colony-specific caste allometry in a top Neotropical predator. *Scientific Reports*.

32. Webster, M., and F. A. Sundberg. 2020. Nature and significance of intraspecific variation in the early Cambrian oryctocephalid trilobite *Oryctocephalites palmeri* Sundberg and McCollum, 1997. *Journal of Paleontology* **94** (1): 70-98. <http://dx.doi.org/10.1017/jpa/2019.85>

31. Moore, J. L., S. M. Porter, M. Webster, and A. C. Maloof. 2019. Chancelloriid sclerites from the Dyeran-Delamaran (‘Lower-Middle’ Cambrian) boundary interval of the Pioche-Caliente region, Nevada, USA. *Papers In Palaeontology*
doi:10.1002/spp2/1274

30. Webster, M. 2019. Morphological homeostasis in the fossil record. *Seminars in Cell and Developmental Biology* **88**: 91-104. <https://doi.org/10.1016/j.semcd.2018.05.016>

29. Webster, M., and S. J. Hageman. 2018. *Buenellus chilhoweensis* n. sp. from the Murray Shale (lower Cambrian Chilhowee Group) of Tennessee, the oldest known trilobite from the Iapetan margin of Laurentia. *Journal of Paleontology* **92** (3): 442-458.

28. Webster, M., and E. Landing. 2016. Geological context, biostratigraphy and systematic revision of late early Cambrian olenelloid trilobites from the Parker and Monkton formations, northwestern Vermont, U.S.A. *Australasian Palaeontological Memoirs* **49**: 193-240.

27. Webster, M. 2015.
Ontogeny and intraspecific variation of the early Cambrian trilobite *Olenellus gilberti*, with implications for olenelline phylogeny and macroevolutionary trends in phenotypic canalization. *Journal of Systematic Palaeontology* **13** (1): 1-74.
DOI: 10.1080/14772019.2013.852903
26. Webster, M., and L. L. Bohach. 2014.
Systematic revision of the trilobite genera *Laudonia* and *Lochmanolenellus* (Olenelloidea) from the lower Dyeran (Cambrian Series 2) of western Laurentia. *Zootaxa* **3824** (1): 1-66.
<http://dx.doi.org/10.11646/zootaxa.3824.1.1>
25. Webster, M., and M. L. Zelditch. 2011.
Evolutionary lability of integration in Cambrian ptychoparioid trilobites. *Evolutionary Biology* **38**: 144-162.
24. Webster, M., and M. L. Zelditch. 2011.
Modularity of a Cambrian ptychoparioid trilobite cranidium. *Evolution & Development* **13** (1): 96-109.
23. Webster, M. 2011.
The structure of cranial shape variation in three early ptychoparioid trilobite species from the Dyeran-Delamaran (traditional “Lower-Middle” Cambrian) boundary interval of Nevada, U.S.A. *Journal of Paleontology* **85** (2): 179-225.
22. Webster, M. 2011.
Trilobite biostratigraphy and sequence stratigraphy of the Upper Dyeran (traditional Laurentian “Lower Cambrian”) in the southern Great Basin, U.S.A. Pp. 121-154 in J. S. Hollingsworth, F. A. Sundberg, and J. R. Foster (eds.), *Cambrian Stratigraphy and Paleontology of Northern Arizona and Southern Nevada*. Museum of Northern Arizona Bulletin, **67**. Flagstaff, Arizona.
21. Webster, M. 2011.
Litho- and biostratigraphy of the Dyeran-Delamaran boundary interval at Frenchman Mountain, Nevada. Pp. 195-203 in J. S. Hollingsworth, F. A. Sundberg, and J. R. Foster (eds.), *Cambrian Stratigraphy and Paleontology of Northern Arizona and Southern Nevada*. Museum of Northern Arizona Bulletin, **67**. Flagstaff, Arizona.
20. Webster, M. 2011.
Litho- and biostratigraphy of the Dyeran-Delamaran boundary interval in the Pioche-Caliente region, Nevada. Pp. 203-215 in J. S. Hollingsworth, F. A. Sundberg, and J. R. Foster (eds.), *Cambrian Stratigraphy and Paleontology of Northern Arizona and Southern Nevada*. Museum of Northern Arizona Bulletin, **67**. Flagstaff, Arizona.

19. Webster, M., L. B. McCollum, and F. A. Sundberg. 2011.
Upper Dyeran and lower Delamarian litho- and biostratigraphy of the northern Groom Range, Nevada. Pp. 226-236 in J. S. Hollingsworth, F. A. Sundberg, and J. R. Foster (eds.), *Cambrian Stratigraphy and Paleontology of Northern Arizona and Southern Nevada*. Museum of Northern Arizona Bulletin, **67**. Flagstaff, Arizona.
18. Webster, M. 2011.
Upper Dyeran litho- and biostratigraphy of the Split Mountain area, Nevada. Pp. 236-246 in J. S. Hollingsworth, F. A. Sundberg, and J. R. Foster (eds.), *Cambrian Stratigraphy and Paleontology of Northern Arizona and Southern Nevada*. Museum of Northern Arizona Bulletin, **67**. Flagstaff, Arizona.
17. Webster, M., and H. D. Sheets. 2010.
A practical introduction to landmark-based geometric morphometrics. Pp. 163-188 in J. Alroy and G. Hunt (eds.), *Quantitative Methods in Paleobiology*. Paleontological Society Papers, Volume **16**.
16. Webster, M. 2009.
Systematic revision of the Cambrian trilobite *Bathynotus* Hall, 1860, with documentation of new occurrences in western Laurentia and implications for intercontinental biostratigraphic correlation. *Memoirs of the Association of Australasian Paleontologists* **37**: 369-406.
15. Hopkins, M. J., and M. Webster. 2009.
Ontogeny and geographic variation of a new species of the corynexochine trilobite *Zacanthopsis* (Dyeran, Cambrian). *Journal of Paleontology* **83** (4): 524-547.
14. Webster, M. 2009.
Ontogeny, systematics, and evolution of the effaced early Cambrian trilobites *Peachella* Walcott, 1910 and *Eopeachella* new genus (Olenelloidea). *Journal of Paleontology* **83** (2): 197-218.
13. Webster, M., and M. L. Zelditch. 2008.
Integration and regulation of developmental systems in trilobites. Pp. 427-433 in Rábano, I., Gozalo, R., and García-Bellido, D (eds.), *Advances In Trilobite Research*. Cuadernos del Museo Geominero **9**. Instituto Geológico y Minero de España, Madrid.
12. Hopkins, M. J., and M. Webster. 2008.
Morphological and ontogenetic change in the “Early” Cambrian trilobite *Zacanthopsis* during an interval of environmental change. Pp. 185-187 in Rábano, I., Gozalo, R., and García-Bellido, D (eds.), *Advances In Trilobite Research*. Cuadernos del Museo Geominero **9**. Instituto Geológico y Minero de España, Madrid.
11. Webster, M., R. R. Gaines, and N. C. Hughes. 2008.

- Microstratigraphy, trilobite biostratigraphy, and depositional environment of the “Lower Cambrian” Ruin Wash Lagerstätte, Pioche Formation, Nevada. *Palaeogeography, Palaeoclimatology, Palaeoecology* **264**: 100-122.
10. Webster, M. 2007.
Paranephrolenellus, a new genus of Early Cambrian olenelloid trilobite. *Memoirs of the Association of Australasian Paleontologists* **34**: 31-59.
 9. Webster, M. 2007.
Ontogeny and evolution of the Early Cambrian trilobite genus *Nephrolenellus* (Olenelloidea). *Journal of Paleontology* **81** (6): 1168-1193.
 8. Webster, M. 2007.
A Cambrian peak in morphological variation within trilobite species. *Science* **317**: 499-502. [See also *Science* 317: 459-460]
 7. Webster, M., and M. L. Zelditch. 2005.
Evolutionary modifications of ontogeny: heterochrony and beyond. *Paleobiology* **31** (3): 354-372.
 6. Fusco, G., N. C. Hughes, M. Webster, and A. Minelli. 2004.
Exploring developmental modes in a fossil arthropod: growth and trunk segmentation of the trilobite *Aulacopleura konincki*. *American Naturalist* **163** (2): 167-183. [See also *Science* **303**: 1583][See also *NGV-Geonieuws*: <http://www.geo.uu.nl/ngv/geonieuws/nieuws-66.htm>]
 5. Webster, M., P. M. Sadler, M. A. Kooser, and E. Fowler. 2003.
Combining stratigraphic sections and museum collections to increase biostratigraphic resolution: Application to Lower Cambrian trilobites from southern California. Pp. 95-128 in P. J. Harries (ed.), *High-Resolution Approaches in Stratigraphic Paleontology*. Topics in Geobiology, Volume 21. Kluwer Academic Publishers, Dordrecht.
 4. Webster, M., H. D. Sheets, and N. C. Hughes. 2001.
Allometric patterning in trilobite ontogeny: Testing for heterochrony in *Nephrolenellus*. Pp. 105-144 in M.L. Zelditch (ed.), *Beyond Heterochrony: The Evolution of Development*. John Wiley and Sons, New York.
 3. Dunlop, J. and M. Webster. 1999.
Fossil evidence, terrestrialization and arachnid phylogeny. *Journal of Arachnology* **27**: 86-93.
 2. Webster, M., and N. C. Hughes. 1999.
Compaction-related deformation in Cambrian olenelloid trilobites and its implications for fossil morphometry. *Journal of Paleontology* **73**: 355-371.

1. Bowden, A., M. Webster, and T. Mitcham. 1997.
Salthill Quarry Geology Trail. Geologists' Association Guide No. **58**. Geologists' Association, London. 30 pp.

PUBLISHED FIELD GUIDES

- Landing, E., and M. Webster. 2018.
Iapetan rift-passive margin transition in NE Laurentia and eustatic control on continental slope oxygenation, Taconic slate colors, and Early Paleozoic climate. *In* Grover, T. W. (ed.), *Guidebook to Field Trips in New York, Vermont, and Massachusetts*. 110th New England Intercol. Geol. Conf. and 90th N.Y. State Geol. Assoc. Meeting, Lake George, NY, October 12-14.

REFEREED ABSTRACTS

35. Moore, J. L., S. M. Porter, and M. Webster. 2018. Small shelly fossils from a section of the Montezuman-Dyeran (Cambrian Stages 3-4) Poleta Formation, Esmeralda County, Nevada. *Geological Society of America, Abstracts with Programs* **50** (6). doi: 10.1130/abs/2018AM-324775
34. LaVine, R., and M. Webster. 2017. Assessing the structure of integration in the cephalon of the middle Cambrian agnostine arthropod *Peronopsis brighamensis*. *Geological Society of America, Abstracts with Programs* **49** (6). doi: 10.1130/abs/2017AM-306346
33. Swisher, R., and M. Webster. 2017. Morphological variation, ontogeny, and origin of zacanthoidid trilobites: A geometric morphometric analysis of the early Cambrian genus *Zacanthopsis*. *Geological Society of America, Abstracts with Programs* **49** (6). doi: 10.1130/abs/2017AM-304798
32. Swisher, R., M. Webster, and M. Hopkins. 2016. Evaluating the early Cambrian origins and inter-clade relationships of corynexochine trilobites; examination of the genus *Zacanthopsis*. *Geological Society of America, Abstracts with Programs* **48** (7). doi: 10.1130/abs/2016AM-284403
31. M. Webster, J.-B. Caron, R. Gaines, and G. Mángano. 2015. Content, nature, and significance of the Rifle Range Lagerstätte (Eager Formation, early Cambrian), Cranbrook, British Columbia. *Geological Society of America, Abstracts with Programs* **47** (7): 638.
30. Swisher, R. E., and M. Webster. 2015. Unraveling evolutionary patterns in the early Cambrian: A phylogenetic analysis of the trilobite family Edelsteinaspidae and the paleobiogeographic implications. *Geological Society of America, Abstracts with Programs* **47** (7): 450.
29. Moore, J. L., S. M. Porter, M. Webster, and A. C. Maloof. 2015. Small shelly fossils from the Dyeran-Delamaran (“lower”-“middle” Cambrian) boundary interval of the Pioche-Caliente region, Nevada, USA. *Geological Society of America, Abstracts with Programs* **47** (7): 27.
28. Moore, J. L., M. Webster, S. M. Porter, and M. Stripe. 2014. Small shelly fossils from the Dyeran and Delamaran (lower and middle Cambrian) of Nevada, USA. *Geological Society of America, Abstracts with Programs* **46** (6): 132.
27. Webster, M., and M. L. Zelditch. 2010. Evolutionary lability of integration in Cambrian ptychoparioid trilobites. *Society for Integrative and Comparative Biology 2010 Annual Meeting and Exhibition, Final Program and Abstracts*.
26. Webster, M., and M. L. Zelditch. 2009. Evolutionary lability of integration in Cambrian ptychoparioid trilobites. *Geological Society of America, Abstracts with Programs* **41** (7): 684.
25. Webster, M., and M. L. Zelditch. 2009. Testing hypotheses of developmental constraints on macroevolutionary diversification: Studying modularity of ancient developmental systems. *Cincinnati Museum Center Scientific Contributions Number 3*: 115.
24. Webster, M., and M. L. Zelditch. 2008. Assessing integration and regulation in ancient developmental systems: An example from a Cambrian trilobite. *Geological Society of America, Abstracts with Programs* **40** (6).

23. Webster, M., N. C. Hughes, and R. Gaines. 2007. Trilobite taphonomy of the uppermost Dyeran (Lower Cambrian) Ruin Wash Lagerstätte, Chief Range, Nevada. *Geological Society of America, Abstracts with Programs* **39** (6): 88.
22. Hopkins, M. J., and M. Webster. 2007. Morphological change in closely-related Cambrian trilobites during an interval of environmental change. *Geological Society of America, Abstracts with Programs* **39** (6): 22.
21. Webster, M. 2006. Macroevolutionary trends in the degree and nature of variability in trilobite species. *Geological Society of America, Abstracts with Programs* **38** (7): 206.
20. Hopkins, M. J., and M. Webster. 2006. Assessing geographic variation in fossil taxa: results from morphometric analyses of Early Cambrian trilobites. *Geological Society of America, Abstracts with Programs* **38** (7): 206.
19. Simpson, A. G., N. Hughes, and M. Webster. 2006. Morphometrics and allometry of *Hintzeia plicamarginis* (Phacopida: Pliomeridae) indicate that the trilobite terminal piece is not a segment. *Geological Society of America, Abstracts with Programs* **38** (7): 205.
18. Webster, M. 2005. Did trilobites show declining intraspecific variability? *Geological Society of America, Abstracts with Programs* **37** (7): 486.
17. Webster, M. 2005. Intraspecific variability in Early Cambrian olenelloid trilobites: implications for biostratigraphy, regional correlation, and phylogeny. *Acta Micropalaeontologica Sinica* **22** (Supplement): 196-197.
16. Webster, M. 2003. Olenelloid trilobites of the southern Great Basin, U.S.A., and a refinement of uppermost Dyeran biostratigraphy. *Geological Society of America, Abstracts with Programs* **35** (6): 166.
15. Webster, M. 2002. Ontogeny and paleobiology of olenelloid trilobites. *Geological Society of America, Abstracts with Programs* **34** (6): 266-267.
14. Webster, M. 2002. Stratigraphic trends in morphology: the evolution of *Bristolia* (Trilobita, Cambrian). *Geological Society of America, Abstracts with Programs* **34** (2): A-14.
13. Webster, M. 2002. Allometric patterning in trilobite ontogeny: testing for heterochrony in *Nephrolenellus*. *Society for Integrative and Comparative Biology 2002 Annual Meeting and Exhibition, Final Program and Abstracts*: 431
12. Webster, M. 2001. Intraspecific variation and morphological evolution in the Early Cambrian trilobite *Bristolia* (Olenelloidea). *Geological Society of America, Abstracts with Programs* **33** (6): A31-A32.
11. Minelli, A., G. Fusco, N. C. Hughes, and M. Webster. 2001. Tagmata and segment specification in trilobites. *Third International Conference on Trilobites and their Relatives, Abstracts*: 23.
10. Webster, M. 2001. Allometric patterning in trilobite ontogeny: testing for heterochrony in *Nephrolenellus*. *Third International Conference on Trilobites and their Relatives, Abstracts*: 30-31.
9. Webster, M., H. D. Sheets, and N. C. Hughes. 2000. Testing for global allometric heterochrony in the fossil record: The Cambrian trilobite *Nephrolenellus* (Olenelloidea). *Geological Society of America, Abstracts with Programs* **32** (7): A-72.

8. Webster, M. 2000. Testing for shared ontogenetic trajectories: Quantification of growth rate and pattern in olenelloid trilobites. *Paleobios* **20** (suppl. 1): 10.
7. Webster, M., M. Zelditch, and N. C. Hughes. 1999. Allometric growth in the ontogenetic development of Early Cambrian olenelloid trilobites. *Geological Society of America, Abstracts with Programs* **31** (7): A-171.
6. Webster, M. 1999. Comparative ontogeny of olenelloid trilobites and the use of developmental information in phylogenetic analyses. *Geological Society of America, Abstracts with Programs* **31** (6): A-106.
5. Webster, M. 1999. Paleobiology and phylogeny of the Olenelloidea. *Paleobios* **19** (suppl. 1): 11.
4. Webster, M. 1998. Mosaic developmental patterns in Early Cambrian olenelloid trilobites. *Geological Society of America, Abstracts with Programs* **30** (7): A-92.
3. Webster, M., and N. C. Hughes. 1998. Ontogenetic development of olenellid trilobites from the Lower Cambrian Pioche Formation (east-central Nevada) and the problem of olenellid taxonomy. *Geological Society of America, Abstracts with Programs* **30** (5): A-69.
2. Webster, M., and N. C. Hughes. 1997. Quantitative assessment of the effects of compaction on morphological variability in two trilobite species from the Lower Cambrian Pioche Shale, Nevada. *Geological Society of America, Abstracts with Programs* **29** (6): A-265.
1. Webster, M. 1997. Quantification of compaction-related deformation on the degree of observed variation in fossils: taphonomic overprint in the trilobite *Olenellus* (*Olenellus*) *gilberti* Meek. *Second International Trilobite Conference, Brock University, St. Catharines, Ontario. Abstracts with Program*. P. 50.

PUBLISHED REVIEWS

Webster, M. 2004. Review of *PaleoBase: Macrofossils 2.0. Molluscs*. *Palaeontologica Electronica* **7** (1): http://palaeo-electronica.org/2004_1/toc.htm

RECENT RESEARCH GRANTS AWARDED

2015 College Research Fellows Program, University of Chicago. *Undergraduate research in paleontology*. Mark Webster (PI).

2014 National Science Foundation Research Grant EAR Integrated Earth Systems 1410503. *Collaborative Research: Toward a global timeline of biological and ocean geochemical change during the early Cambrian*. Sam Bowring, John Higgins, Adam Maloof, Susannah Porter, Steve Wang, and Mark Webster (PIs).

2012 National Geographic Society Committee for Research and Exploration. *Documenting the Early Diversification of Arthropods: Fieldwork in Cambrian Strata on Judge Daly Promontory, Ellesmere Island, Canadian Arctic, Summer 2013*. Mark Webster (PI).

- 2007 National Science Foundation Doctoral Dissertation Improvement Grant DEB-0709750. *The role of morphological integration in the evolutionary history of Artiodactyla*. Annat Haber (doctoral student), Mark Webster (PI).
- 2000 National Science Foundation Research Grant EAR-9980372. *Parsimony trees, best-fit fences, and consensus sequences: Integrating cladistics and biostratigraphy at high resolution*. P. M. Sadler, N. C. Hughes (PIs), M. Webster (named researcher).

SESSIONS AND EVENTS ORGANIZED AT MEETINGS

- 2008-2018 *Friends of the Cambrian*. Geological Society of America Annual Meeting.
- 2006 Topical Session T116. *Trilobite paleobiology and evolution: In honor of Brian Chatterton*. Geological Society of America Annual Meeting, Philadelphia, PA. (Co-organized and chaired with Brenda Hunda)

AWARDS AND HONORS

- 2000 Best Presentation Award, CalPaleo Conference
- 1999 Geoscience Museum Best Student Research Presentation Award, University of California, Riverside
- 1998 Outstanding Student Research Award, Geological Society of America
- 1997 Sundemann Award for Teaching, University of Cincinnati, Ohio
- 1996 Dancer Prize for Natural Sciences, University of Manchester, England
- 1995 Palaeontological Association Prize for Palaeontology, University of Manchester, England
- 1994 F. M. Broadhurst Prize for Geology, University of Manchester, England

INVITED TALKS

- 2020** University of Kansas
- 2018** Cranbrook History Centre, Cranbrook, British Columbia
- 2015** University of Oklahoma
- 2011** 1. University of Michigan
2. SUNY Buffalo
- 2010** Paleontological Society Short Course, Geological Society of America Annual Meeting, Denver, Colorado.
- 2009** Harvard University
- 2008** Yale University
- 2006** Field Museum of Natural History, Chicago
- 2005** 1. University of Illinois, Chicago

- 2. University of Nevada, Las Vegas (Biology Department)
- 2004** 1. The Origin of Animals. Annual Symposium of the IGPP Center for the Study of Evolution and the Origin of Life (CSEOL), University of California, Los Angeles.
2. University of California, Los Angeles (Biology Department)
- 2003** 1. University of Iowa (2 talks)
2. University of California, Santa Barbara
3. Field Museum of Natural History, Chicago
4. University of Chicago
- 2002** 1. University of California, Los Angeles
2. University of Wisconsin, Milwaukee (2 talks)
3. Texas A&M University
4. University of Cincinnati

PROFESSIONAL SERVICE

- Voting Member of International Subcommittee for Cambrian Stratigraphy (2011 – present)
- Member of the International Subcommittee for Cambrian Stratigraphy Stage 4-5 Boundary working group (2003 – present)
- Member of the International Subcommittee for Cambrian Stratigraphy Stage 3-4 Boundary working group (2015 – present)
- Member of the International Subcommittee for Cambrian Stratigraphy Stage 2-3 Boundary working group (2010 – present)
- Associate editor for *Evolution* (January 2013 – January 2016)
- National Science Foundation SGP panel (Fall 2012)
- President, Institute for Cambrian Studies (2007 – present)
- Board Member, Institute for Cambrian Studies (2006 – present)
- Curator of Research Collections and Library, Institute for Cambrian Studies (2006 – present)
- Paleontological Society, Nominations Committee (2007 – 2009)
- Society for Sedimentary Geology, Moore Medal Committee (2006 – 2009)
- Paleobiology Database, data contributor (2006 – present)

UNIVERSITY SERVICE

- Board of the Library (2018 – 2021; as Chair, 2019 - 2021)
- College Council (2013 – 2016)
- Crerar Science Writing Prize judge (2012, 2013, 2014, 2015, 2017, 2018, 2019)
- Invited speaker; 4th Biennial Kathleen A. Zar Symposium “Life Cycle of Scientific Publishing” Workshop, Crerar Library (2015)
- Library Reshelving Committee (2005 – 2006, 2010)

DEPARTMENTAL SERVICE

Department of the Geophysical Sciences:

- Undergraduate Advisor (2015 – present)
- Admissions Committee (2018)
- Chair Search Committee (2018)
- Colloquia Committee (2015 – 2016)
- Appointments Committee (2013 – 2014, 2018 – 2019 [as Chair])
- Curriculum Committee (2005 – 2015)
- T. C. Chamberlin Postdoctoral Fellowship Committee (2009 – 2010)

Committee on Evolutionary Biology:

- Admissions Committee (2006 – 2012, 2014 – 2019)

OUTREACH

Francis W. Parker High School, Chicago:

- 2018 Gave a lecture on being a paleontologist to 6th grade
- 2016 Gave a lecture on evolution in the fossil record as part of the Advanced Biology course for juniors and seniors
- 2015 Gave a lecture on evolution in the fossil record as part of the Advanced Biology course for juniors and seniors
Led a field trip to central Illinois as part of the Paleontology course for juniors and seniors
- 2012 Gave a lecture on evolution in the fossil record as part of the Advanced Biology course for juniors and seniors
- 2010 Led a field trip to central Illinois as part of the Paleontology course for juniors and seniors
- 2010 Gave a lecture on evolution in the fossil record as part of the Advanced Biology course for juniors and seniors
- 2009 Led a field trip to the Field Museum as part of the Paleontology course for juniors and seniors
- 2009 Led a field trip to central Illinois as part of the Paleontology course for juniors and seniors
- 2007 Led a field trip to the Field Museum as part of the Paleontology course for juniors and seniors
- 2007 Co-led a field trip to central Illinois as part of the Paleontology course for juniors and seniors
- 2006 Led a field trip to Cincinnati as part of the Paleontology course for juniors and seniors

McDade Classical Elementary School, Chicago:

- 2014 Gave a lecture on paleontology as part of the science course for 6th graders
- 2014 Gave a lecture on paleontology as part of the science course for 5th graders

St. Augustine's R. C. High School, Billington, Lancashire, England

- 2010 Gave a lecture on local geology and led a field trip to Salthill Quarry as part of the science course

Warren Park Elementary School, Cicero, Illinois

- 2019 Gave a lecture on being a paleontologist to 3rd grade

TEACHING STATEMENT

My training and research in geology, paleontology, and biology give me a strong background for the teaching of introductory and upper division undergraduate and graduate level courses in paleontology and evolutionary biology. These courses take an integrative approach, combining traditional paleontology with concepts drawn from fields such as evolutionary developmental biology and sequence stratigraphy. I also teach graduate level courses focusing on methods in paleobiological research, including practical introduction to morphometric procedures, methods of phylogenetic inference, statistical data analysis, and integrative approaches to paleobiology. Such courses form an important basis for uniting various fields within the earth sciences, and for linkage between geological and biological sciences. I gained experience in teaching introductory level undergraduate courses in geology and in biology during my time as a graduate student at the University of Cincinnati and the University of California, Riverside, and have been awarded for my teaching (Sundemann Award for Teaching, University of Cincinnati) and for my ability to present research (Geoscience Museum Award, UCR and Best Presentation Award at the CalPaleo Conference). I have designed and taught lower division, upper division, and graduate level courses in paleontology as a professor at UCLA and at Chicago. I have great enthusiasm for teaching and public speaking. My supervising experience is highlighted below.

I have considerable experience as a field geologist in Europe and North America, and many years of experience in leading public, high school, and university-level field trips on sites of geological and biological interest. Field trips form an integral component of my undergraduate courses. Many of the senior theses I have supervised have involved considerable original fieldwork conducted by the student. I also continue to utilize undergraduate and graduate students as field assistants in my own research, through which they gain hands-on experience in practical field geology and paleontological sampling.

TEACHING EXPERIENCE

University of Chicago:

General Education Core Courses

PHSC 11000: *Environmental History of the Earth*. 2016, 2017, 2018, 2019, 2020.

Undergraduate/Graduate Courses

GEOS 26300/36300: *Invertebrate Paleobiology and Evolution* (with field trip). 2005, 2006, 2007, 2008, 2010, 2011, 2012, 2013, 2015, 2017, 2019.

GEOS 28100/38100: *Field Course in Geology*. 2008, 2014.

Graduate Courses

GEOS 36000: *Morphometrics*. 2006, 2008, 2010, 2012, 2014, 2016, 2018, 2020.

GEOS 36200: *Evolution and the Fossil Record*. 2007, 2009, 2011, 2013, 2015, 2017, 2019.

GEOS 36900: *Topics in Paleontology*. 2014.

University of California, Los Angeles:

Undergraduate Courses

ESS 116: *Paleontology*. Upper Division Course (with field trip). 2004.

ESS 17: *Dinosaurs and their Relatives*. Lower Division Course. 2004.

ESS 19B: *Paleontology In Action*. Lower Division “Fiat Lux” Seminar (with field trip). 2003.

ESS 199: Special Studies. Research in my lab for two undergraduate students (with field work). 2004.

SRP: Supervisor of research in my lab for two undergraduates in the Student Research Program. 2004.

Graduate Courses

ESS 296Q: *Paleobiology*. Graduate Course. 2004.

University of California, Riverside:

1999-2000 Teaching Assistant for Introductory Geology Courses for undergraduates at University of California, Riverside. (Three quarters - including field trips)

1998 Teaching Assistant for Introductory Geology Courses for undergraduates at University of California, Riverside. (One quarter - including field trips)
Teaching Assistant for Introductory Biology Courses for undergraduates at University of California, Riverside. (One quarter - including field trip)

University of Cincinnati:

1996-1997 Teaching Assistant for Introductory Geology Courses for undergraduates at University of Cincinnati. (Three quarters - including field trips)

WORKSHOPS TAUGHT

2019 “Geometric Morphometrics” component of the Paleobiology Database Intensive Summer Course in Analytical Paleobiology, Riverside, CA.

2005, 2006, 2008, 2009 “Geometric Morphometrics” component of the Paleobiology Database Intensive Summer Course in Analytical Paleobiology, Santa Barbara, CA.

2005 “Phylogenetics For Dummies” Workshop, Annual Meeting of the Society for Integrative and Comparative Biology, San Diego, CA.

STUDENTS SUPERVISED

Postdoctoral Researchers:

- Rob Swisher (2015-2018)

Ph.D. Committees Chaired (Current):

- Matt Witte (2016-present), Geophysical Sciences, University of Chicago.
- Reuben Ng (2019-present), Geophysical Sciences, University of Chicago.

Ph.D. Committees Chaired (Past):

- Rhiannon LaVine (2012-2020), Geophysical Sciences, University of Chicago.
- Melanie Hopkins (2004-2010), Geophysical Sciences, University of Chicago.
- Annat Haber (2004-2010), CEB, University of Chicago.

M.S. Committee Chaired (Past):

- Brayden Pittsenbarger (2014-2016), Geophysical Sciences, University of Chicago.
- Joseph Walkowicz (2011-2014), Geophysical Sciences, University of Chicago.
- Tyler Mason (2007-2010), Geophysical Sciences, University of Chicago.

Ph.D. Committees Served On (Current):

- Maria Scott (2017-present), CEB, University of Chicago.
- Abigail Caron (2017-present), CEB, University of Chicago.
- David Cerny (2018-present), Geophysical Sciences, University of Chicago.
- Rachel Laker (2018-present), Geophysical Sciences, University of Chicago.
- Anna Wisniewski (2018-present), Geophysical Sciences, University of Chicago.
- Tristan Reinecke (2019-present), CEB, University of Chicago.

Ph.D. Committees Served On (Past):

- Grant Macdonald (2014-present), Geophysical Sciences, University of Chicago.
- Madeline Marshall (2012-2018), Geophysical Sciences, University of Chicago.
- Peter Tierney (2011-2018), Geophysical Sciences, University of Chicago.
- Stewart Edie (2011-2018), Geophysical Sciences, University of Chicago.
- Tim Sosa (2011-2017), CEB, University of Chicago.
- Max Winston (2011-2017), CEB, University of Chicago.
- Nicole Bitler (2011-2016), CEB, University of Chicago.
- Jonathan Mitchell (2011-2015), CEB, University of Chicago.
- Kathryn Larson (2007-2013), Geophysical Sciences, University of Chicago.
- David Bapst (2007-2013), Geophysical Sciences, University of Chicago.
- Lauren Sallen (2007-2012), CEB, University of Chicago.
- Mara Brady (2006-2011), Geophysical Sciences, University of Chicago.
- John Adams (2009-2011), Geophysical Sciences, University of Chicago.
- Rudd Sadlier (2004-2009), CEB, University of Chicago.

- Marty Erwin (2004-2007), Biology Department, University of Nevada, Las Vegas.
- Emily Allen (2004-2005), Geophysical Sciences, University of Chicago.

M.S. Committee Served On (Past):

- Sarah Tulga (2015-2017), Geophysical Sciences, University of Chicago.
- Tristan Betzner (2014-2017), Geophysical Sciences, University of Chicago.
- Nadia Pierrehumbert (2012-2017), Geophysical Sciences, University of Chicago.
- Emily King (2009-2011), Geophysical Sciences, University of Chicago.

Undergraduate Senior Theses Supervised:

- Daniel Eisenhauer (2017—present), University of Chicago.
- Olivia Pardo (2017-2018), University of Chicago.
- Ernesto Vargas (2016-2017), University of Chicago.
- Brigit Tronrud (2016-2017), University of Chicago.
- Ryan Manzuk (2015-2016), University of Chicago.
- Liza Connolly (2012-2013), University of Chicago.
- Franco Gallastegui (2012-2013), University of Chicago.
- Matthias Dean-Carpentier (2009-2010), University of Chicago.
- Jennie Crittenden (2009-2010), Colorado College (co-supervised with Paul Myrow).
- Emily King (2007-2008), University of Chicago.
- Steve Brusatte (2005-2006), University of Chicago.
- Jennifer LaGrange (2001-2002), University of California, Riverside.

Undergraduates Working in My Lab (Current):

- Daniel Eisenhauer (2017—present), University of Chicago.

Undergraduates Working in My Lab (Past):

- Olivia Cattau (2017—2018), University of Chicago.
- Anastasia Bernat (2016-2017), University of Chicago.
- Ernesto Vargas (2014-2017), University of Chicago.
- Xavier Zahnle (2014-2015), University of Chicago.
- Katrina Benson (2014-2015), University of Chicago.
- Ryan Manzuk (2013-2016), University of Chicago.
- Brigit Tronrud (2013-2016), University of Chicago.
- Sam Albright (2013-2014), University of Chicago.
- Liza Connolly (2012-2013), University of Chicago.
- Jennie Crittenden (2009-2010), University of Chicago.
- Emily King (2007-2008), University of Chicago.
- Ryan McKenzie (2003-2004), University of California, Los Angeles.

COLLECTIONS EXPERIENCE

- Curator of Research Library and Collections, Institute for Cambrian Studies (2006 – present)
- Research Associate, Field Museum, Chicago (2004 – present)
- Manager of paleontology collections, Department of Earth and Space Sciences, UCLA (2003)
- Research Associate, Cincinnati Museum Center, Ohio. Including collection management (1996 – 1997)
- Volunteer Assistant Curator (Geology), Manchester Museum, England. Including collections management and preparation (1993 – 1996)
- Volunteer Assistant Curator, Clitheroe Castle Museum, Lancashire, England. Including collections management, preparation, setting up of exhibitions, leading guided tours and field trips (1993 – 1996)

FIELD EXPERIENCE

U.S.A.:

GREAT BASIN: Extensive collecting and logging of lower and middle Cambrian shelf, slope, and cratonic facies sections in Nevada and California (1997 – present). Extensive collecting and logging of middle Cambrian to middle Ordovician shelf and basin facies sections in Utah (2008, 2010). Collecting and logging of Ordovician sections in Nevada and White-Inyo Ranges (California) (1997).

PENNSYLVANIA: Extensive collecting and logging of lower Cambrian shelf and slope sections (2005 – present).

NEW YORK STATE AND VERMONT: Extensive collecting and logging of lower Cambrian shelf and slope sections (2007 – present).

TENNESSEE: Reconnaissance and collecting of lower Cambrian shelf sections (2016).

OHIO AND KENTUCKY: Extensive mapping, collecting, and logging of Upper Ordovician sections in type region for Cincinnati (1996, 1997, 2011). Detailed collecting of Mt. Orab trilobite bed (2010). Field trips associated with graduate, undergraduate and high school teaching (2005 – present).

ILLINOIS: Field trips associated with high school teaching (2007 – present).

Canada:

NUNAVUT: Reconnaissance, collecting, and logging of Upper Devonian sections (marine and non-marine) on the Grinnell Peninsula, Devon Island (2011). Reconnaissance, collecting, and logging of lower and middle Cambrian sections (marine) on the Judge Daly Peninsula, Ellesmere Island (2014).

BRITISH COLUMBIA: Reconnaissance, collecting, and logging of lower Cambrian sections at Cranbrook and in the Canadian Rockies (2015, 2018).

NEWFOUNDLAND AND LABRADOR: Reconnaissance, collecting, and logging of lower Cambrian sections on the Labrador coast (2016).

Great Britain:

ENGLAND: Extensive logging, mapping, and collecting of Carboniferous sections in Craven Basin (East Lancashire), including paid work on the Waulsortian buildups in the district (1995-7), detailed logging of Castle Cement's Ribblesdale Quarry (1995-1997), and site surveys for the Regionally Important Geological Sites project (1993-1996). Extensive collecting of Lower Jurassic marine sections of Yorkshire coast (1993-1996). Member of discovery and excavation team of newsworthy *Steneosaurus gracilirostrus* crocodile from Jurassic of Yorkshire coast (summer 1995). Field Trips with University of Manchester Department of Geology to Devon (1994) and Dorset (1996) studying regional geology.

SCOTLAND: Logging and collecting of lower Cambrian sections in Loch Assynt district, Northwest Highlands (July – August, 2000). Field Trip with St. Mary's College Geology Department to study geology of Edinburgh district (1993).

Spain:

NORTHEAST: Collecting and logging of lower and middle Cambrian shelf strata (2008).

COSTA DEL SOL: Field Trip with University of Manchester Department of Biology to study ecology of Costa Del Sol region (1995).

THE INSTITUTE FOR CAMBRIAN STUDIES

The Institute for Cambrian Studies (ICS) is a nonprofit organization dedicated to international research in the Cambrian System. The objectives and purposes of the ICS are exclusively to promote the scientific study of the Cambrian System in all its aspects in all parts of the world, including but not restricted to (1) promotion of the exchange of scholarly information through publication of newsletters, articles, and books of timely interest to the scientific community; (2) sponsorship or co-sponsorship of scientific conferences; and (3) promotion of scientific research through grants-in-aid to qualified scientists, advanced graduate students, and public institutions.

The current ICS Board of Directors comprises: Mark Webster (President), James Hagadorn (Secretary-Treasurer), Nigel Hughes (Board Member), Loren Babcock (Board Member), and A. R. (Pete) Palmer (Past President).

ICS Research Library and Collections:

The internationally important Research Library and Collections of the ICS, previously managed and maintained by Pete Palmer (Boulder, CO), was passed into my care in the summer of 2006. The Research Library and Collections consist of (1) a comprehensive library of Cambrian literature (published and unpublished); (2) an extensive database of Cambrian fossil occurrences and species synonymies; (3) an extensive collection of Cambrian fossil specimens; and (4) replicas of the type specimens of many Cambrian trilobite species. These resources are used by many international scholars and students, and the ICS is considered by many Cambrian paleontologists as the information hub for Cambrian research. The ICS Research Library and Collections will remain under my management until the end of my research career.

Considerable effort has been made since 2006 to expand the ICS Research Library and Collections and make the resources more easily accessible. The research collections have more than doubled in size since 2006. This stems largely from the incorporation of my own newly collected material, but also from the acquisition of additional collections (e.g., the Sepkoski thesis collections). The ICS research library has also almost doubled in size with the generous donation of the personal libraries of Michael Taylor (in 2008) and George Theokritoff (in 2014).

All records for the ICS Research Library and Collections were previously maintained on index cards. To improve the utility of the database, I have constructed easily searchable electronic databases for all ICS records, and have entered data from the index cards into these digital databases. To date, the ICS Collections Database includes locality details and species occurrences for 1,200 fossil collections held by the ICS; the ICS Replica Collection Database includes systematic, stratigraphic, and repository information (and in many cases digital photographs) for almost 4,000 replica specimens; and the ICS Synonymy Database includes extensive synonymy and occurrence data for over 18,000 trilobite species. These databases are currently available for use upon request, and will ultimately be posted on the new ICS web site*. Collections data will also be incorporated into the Paleobiology Database.

* http://geosci.uchicago.edu/~mwebster/sites/ics/Institute_for_Cambrian_Studies_index.html