BRUCE SMITH LIEBERMAN

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CURRENT POSITION:
Professor and Senior Curator, University of Kansas

FIELD OF SPECIALIZATION: Invertebrate Paleontology
RESEARCH INTERESTS: Macroevolution, Paleobiology, Biogeography, Phylogenetics

EDUCATION

1991–1994	Ph.D. Columbia University, Geological Sciences, thesis title: "The Evolution of the Hamilton Group Fauna and a Hierarchical Perspective on Evolutionary Analysis", advisor Niles Eldredge
1989–1991	M.A. Columbia University, Geological Sciences, advisor Niles Eldredge
1984–1988	A. B. Harvard University, Geological Sciences, Summa Cum Laude, advisor Stephen Jay Gould

POST-DOCTORAL FELLOWSHIPS

1996–1998	Competitive NSF Postdoctoral Fellowship in the Earth Sciences, sponsor Andrew Knoll, Harvard University
1994–1995	NSF funded (Niles Eldredge, PI), sponsor Elisabeth Vrba, Yale University

PROFESSIONAL POSITIONS AND APPOINTMENTS

2012–present	Professor, Department of Ecology and Evolutionary Biology, *University of Kansas*
2007–2012	Professor, Department of Geology, *University of Kansas*
2007–present	Senior Curator, Division of Invertebrate Paleontology, Biodiversity Institute, *University of Kansas*
2007–2012	Courtesy Professor, Department of Ecology and Evolutionary Biology, *University of Kansas*
2005–2007	Interim Director, Paleontological Institute and Treatise on Invertebrate Paleontology, *University of Kansas*
2005–2007	Acting Curator, Division of Invertebrate Paleontology, Natural History Museum and Biodiversity Institute, *University of Kansas*
2004–2004	Visiting Professor, Department of Geology and Geophysics, *Yale University*, and Visiting Curator, Division of Invertebrate Paleontology, Peabody Museum of Natural History. Funds provided by Yale Institute for Biospheric Studies and Yale Peabody Museum.
2002–2007	Associate Professor, with tenure, Department of Geology, *University of Kansas*
2002–2007	Courtesy Associate Professor, Department of Ecology and Evolutionary Biology, *University of Kansas*
1999–2002	Courtesy Assistant Professor, Department of Ecology and Evolutionary Biology, *University of Kansas*
1998–2002	Assistant Professor, Department of Geology, *University of Kansas*
1995–present	Curatorial Affiliate, Peabody Museum of Natural History, *Yale University*

GRANTS AWARDED *(TOTAL GRANT DOLLARS AS FACULTY MEMBER = $5,344,925; AMOUNT OF FUNDS TO UNIVERSITY OF KANSAS = $2,922,561)*

2016–2019	NSF Advancing Digitization of Biological Collections, "Digitization TCN: Collaborative Research: The Cretaceous World: Digitizing Fossils to Reconstruct Evolving Ecosystems in the Western Interior Seaway" $2,100,000 ($519,636 to KU), KU is the lead institution and I am the lead PI, with co-PIs at KU Jim Beach and Chris Beard and co-PIs at the South Dakota School of Mines & Technology Laurie Anderson and Maribeth Price, along with collaborators at American Museum of Natural History, Fort Hays State University/Sternberg Museum of Natural History, Paleontological Research Institution, University of Colorado, University of New Mexico, University of Texas, and Yale University
2013–2018	NSF Systematic Biology, "Integrating fossil data into likelihood-based phylogenetic analyses with trilobites as a model system" $448,665, PI, Mark Holder, I am the co-PI
2012–2017	NSF Emerging Frontiers, Advancing Digitization of Biological Collections, "Digitization TCN: Collaborative Research: Digitizing Fossils to Enable New Syntheses in Biogeography- Creating a PALEONICHES-TCN" $950,000 ($600,000 to KU), KU is the lead institution and I am the lead PI, with co-PIs at KU Una Farrell and Jim Beach and collaborators at San José State and Ohio University
2007–2013	NSF Systematic Biology RevSys, "Revisionary systematics of Cheirurid trilobites." $450,000 ($213,000 to KU), I was the PI with PI Jonathan Adrain
2005–2008	NSF Sedimentary Geology and Paleobiology, "An integrative paleontological and paleoenvironmental study of the Middle Cambrian Spence, Wheeler, and Marjum soft-bodied faunas of Utah." $250,000 ($110,000 to KU), I was the PI with co-PI's Derek Briggs, Mary Droser, and Robert Gaines
2004–2010	NSF DBI, "Archiving the history of life: High-density storage to solve space needs for an invertebrate paleontology research and teaching collection." $251,708, I was the PI with co-PI's Roger Kaesler and Steve Hasiotis
2004–2007	NASA Exobiology, "Did a gamma ray burst cause the late Ordovician mass extinction?" $417,552, I was a co-PI with PI Adrian Melott and co-PI's Claude Laird, Mikhail Medvedev, and Larry Martin
2003–2006	KU Endowment Association, Self Faculty Scholar Award, $150,000, I was the PI
2001–2005	NSF Geology and Paleontology, "A Sequence, Chemo-, and Biostratigraphic Study of Late Early Cambrian Rocks, Southern Selwyn Basin, Mackenzie Mountains, N.W.T., Canada." $212,000 ($117,000 to KU), I was the co-PI with PI Mike Pope
2001–2002	National Geographic, "Early Cambrian Climate and Evolution." $20,000, I was a co-PI with PI Mike Pope and co-PI Mario Coniglio
2000–2003	NSF-OPP Antarctic Geology and Geophysics, "Characterization of the Fauna of the Middle Cambrian Nelson Limestone: A Fauna of Relevance to Antarctic Geology." $60,000, I was the PI
2000–2003	NSF EPSCoR First Award, "Assessing the Long Term Effects of Invasive Species Using the Fossil Record." $35,000, I was the PI
1995–1997	NSF Postdoctoral Fellowship in the Earth Sciences, $72,000

BIBLIOGRAPHY

H-index = 33, Google scholar citations: http://scholar.google.com/citations?hl=en&user=-PQhyBIAAAAJ&view_op=list_works

MAJOR PUBLICATIONS–BOOKS

6. **Lieberman, B. S.** *Paleontology and the Origin of Species: A Macroevolutionary Synthesis*. Oxford University Press, New York. In prep.
5. Wiley, E. O., and **B. S. Lieberman**. 2011. *Phylogenetics, 2nd edition*. J. Wiley & Sons, New York. 432 p.
4. **Lieberman, B. S.**, and R. A. Kaesler. 2010. *Prehistoric Life: Evolution and the Fossil Record*. Wiley/Blackwell Scientific, Oxford, UK, 385 p.
   Reviews: Favorably in *About.com - Dinosaurs*, April 2010
   Recommended: http://birdbookerreport.blogspot.com/2010_08_01_archive.html
3. **Lieberman, B. S.**, A. Stigall Rode, editors. 2005. *Paleobiogeography: Generating New Insights into the Coevolution of the Earth and Its Biota*. Paleontological Society Papers 11, Paleontological Society, Lawrence, KS, 158 pp.
2. Adrain, J., G. D. Edgecombe, and **B. S. Lieberman**, editors. 2001. *Fossils, Phylogeny, and Form: An Analytical Approach*. Plenum Press/Kluwer Academic Publishers, New York.
   Reviews: Favorably in *Palaeontological Association Newsletter* no. 50, 2002
   Favorably in *Paleobiology* vol. 29(2), p. 298-302, 2003
1. **Lieberman, B. S.** 2000. *Paleobiogeography: Using Fossils to Study Global Change, Plate Tectonics, and Evolution*. Plenum Press/Kluwer Academic Publishers, New York.
   Reviews: Favorably in *American Scientist* vol. 89, Jan.-Feb. 2001
   Favorably in *Quarterly Review of Biology* vol. 76,Sept. 2001
   Recommended in *Choice* vol. 38, April 2001
   Favorably in *American Paleontologist* vol. 9, Feb. 2001
   Mentioned in *Harvard Magazine*, May-June 2001
   Favorably in *Northeastern Naturalist* vol. 11(3), 2004

MAJOR PUBLICATIONS–SPECIAL ISSUES OF JOURNALS EDITED

1. **Lieberman, B. S.**, editor. 2012. *Biogeography: The Geography of Evolution. Evolution: Education and Outreach Vol. 5, #4*.

MAJOR PUBLICATIONS–JOURNAL ARTICLES AND BOOK CHAPTERS
*=MONOGRAPH

113. Evans, K. R., McKenna, L. W. III, **Lieberman, B. S.**, Weichert, W. D., and K.G. MacLeod. 2017. Stratigraphy of the middle Cambrian (Series 3) Nelson Limestone at Postel Nunatak, Patuxent Range, Antarctica. *Antarctic Science*. In review.
112. Kimmig, J., Strotz, L. C., and **B. S. Lieberman**. 2017. The stalked filter feeder *Siphusauctum lloydguntheri* n. sp. from the middle Cambrian (Series 3: Stage 5) Spence Shale of Utah: its biological affinities and taphonomy. *Journal of Paleontology*. In review.
111. Simoes, M., **Lieberman, B. S.**, Soberon, J., and A. T. Peterson. 2017. Testing environmental correlates of clines in clades: An example from cassidine beetles. *Insect Conservation and Diversity*. In review.
110. Pates, S., Daley, A. C., and **B. S. Lieberman**. 2017. Hurdiid radiodontans from the Middle Cambrian of Utah. *Journal of Paleontology*. Accepted.
109. Melott, A. L., Pivuranas, A., Meert, J. G., and **B. S. Lieberman**. 2017. Does the planetary dynamo go cycling on? Re-examining the evidence for cycles in magnetic reversal rate.

International Journal of Astrobiology 17:1-7 (online). http://dx.doi.org/10.1017/S1473550417000040 .

108. **Lieberman, B. S**., R. Kurkewicz, and H. C. Shinogle. 2017. Porpitids (Cnidaria: Hydrozoa) from the early Cambrian (Series 2: Stage 4) of Nevada, U.S.A. *PeerJ*. In review.
107. Simoes, M., Alvarado, M., Breitkreuz, L, Baca, S., Cooper, J. C., Heins, L., Herzog, K., and **B. S. Lieberman.** 2016. The evolving theory of evolutionary radiations. *Trends in Ecology & Evolution (TREE)* 31:27-34. http://dx.doi.org/10.1016/j.tree.2015.10.007 .
106. **Lieberman, B. S**., and E. E. Saupe. 2016. Palaeoniches get stiches: analyses of niches informing macroevolutionary theory. *Lethaia* 49:145-149.
105. **Lieberman, B. S**. 2016. Pattern versus processes and hierarchies: Revisiting eternal metaphors in macroevolutionary theory. Pp. 29-46 *in* N. Eldredge, T. Pievani, E. Serrelli, and I. Temkin (Eds.), *Evolutionary Theory: A Hierarchical Perspective*. University of Chicago Press.

Note, article mentioned favorably in review of book in "Science" magazine, vol. 353, issue 6307, p. 1505, September 30, 2016.

104. Hendricks, J. R., Stigall, A. L., and **B. S. Lieberman**. 2015. The *Digital Atlas of Ancient Life*: delivering information on paleontology and biogeography via the web. *Paleontologia Electronica* 18.2.3E:1-9.
103. Saupe, E. E., Q. Huijie, J. R. Hendricks, R. W. Portell, S. J. Hunter, J. Soberón, and **B. S. Lieberman**. 2015. Estimating extinction risk as a function of niche breadth and geographic range size: a case study using Pliocene-recent mollusks. *Global Ecology and Biogeography* 24:1159-1169. DOI: 10.1111/geb. 12333 .
102. Myers, C. E., A. L. Stigall, and **B. S. Lieberman**. 2015. PaleoENM: Applying ecological niche modeling to the fossil record. *Paleobiology* 41:226-244.
101. Casey, M. M., and **B. S. Lieberman**. 2014. Beyond memorization: an intermediate-level paleontology activity that integrates anatomy, ecology, and macroevolutionary theory using trilobites. *Evolution Education and Outreach* 7(20):1-10.
100. Saupe, E. E., J. R. Hendricks, R. W. Portell, H. J. Dowsett, A. Haywood, S. J. Hunter, and **B. S. Lieberman**. 2014. Macroevolutionary consequences of climate change on niche evolution in marine mollusks over the past 3 million years. *Proceedings of the Royal Society, Series B*. 281:20141995. http:/dx.doi.org/10.1098/rspb.2014.1995 .
99. Gapp, I. W., and **B. S. Lieberman**. 2014. New olenelloid trilobites from the Northwest Territories, Canada. *Zootaxa* 3866(4):479-498.
98. **Lieberman, B. S**., and N. Eldredge. 2014. What is punctuated equilibrium? What is macroevolution. *Trends in Ecology & Evolution (TREE)* 29:185-186.
97. Saupe, E. E., J. R. Hendricks, A. T. Peterson, and **B. S. Lieberman**. 2014. Climate change and marine molluscs of the western North Atlantic: future prospects and perils. *Journal of Biogeography* 41:1352-1366. doi: 10.1111/jbi.12289.
96. **Lieberman, B. S**., and A. L. Melott. 2013. Declining volatility, a general property of disparate systems: from fossils, to stocks, to the stars. *Palaeontology* 56:1297-1304. doi: 10.1111/pala.12017.
95. Alvaro, J. Javier, P. Ahlberg, L. E. Babcock, O. L. Bordonaro, D. K. Choi, R. A. Cooper, G. K. Ergaliev, I. W. Gapp, M. G. Pour, N. C. Hughes, J. B. Jago, I. Korovnikov, J. R. Laurie, **B. S. Lieberman**, J. R. Paterson, T. V. Pegel, L. E. Popov, A. W. A. Rushton, M. F. Tortello, Z. Zhou, and A. Zylinska. 2013. Global Cambrian trilobite paleobiogeography assessed using Parsimony Analysis of Endemicity. *Geological Society of London, Memoir Series*: 38:273-296. Early Palaeozoic Biogeography and Palaeogeography, D. Harper and T. Servais (eds.).
94. Myers, C. E., R. A. MacKenzie III, and **B. S. Lieberman**. 2013. A GIS approach to studying greenhouse biogeography: invasion and extinction in the Cretaceous Western Interior Seaway. *Paleobiology* 39:135-148.

Note, article featured on January 24, 2013 in:
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93. Gapp, I. W., C. R. Congreve, and **B. S. Lieberman**. 2012. Unraveling the phylogenetic relationships of the Eccoptochilinae, an enigmatic array of Ordovician cheirurid trilobites. *PLoS One* 7(11): e49115, http://dx.plos.org/10.1371/journal.pone.0049115 .
92. **Lieberman, B. S**. 2012. The geography of evolution and the evolution of geography. *Evolution Education and Outreach* 5:521-525. (DOI) 10.1007/s12052-012-0414-1
91. **Lieberman, B. S.** 2012. Adaptive radiations in the context of macroevolutionary theory: a paleontological perspective. *Evolutionary Biology* 39:181-191.
90. Peterson, A. T., and **B. S. Lieberman**. 2012. Species' geographic distributions through time: playing catchup with changing climates. *Evolution Education and Outreach* 5:569-581. DOI: 10.1007/s12052-012-0385-2.
89. Marshall, A. Olcott, R. L. Wehrbein, **B. S. Lieberman**, and C. P. Marshall. 2012. Raman spectroscopic investigations of Burgess Shale-type preservation: a new way forward. *Palaios* 27:288-292.
88. Abe, F. R, and **B. S. Lieberman**. 2012. Quantifying morphological change during an evolutionary radiation of Devonian trilobites. *Paleobiology* 38(2):292-307.
87. **Lieberman, B. S.**, and A. L. Melott. 2012. Whilst this planet goes cycling on: What role for periodic astronomical phenomena in large scale patterns in the history of life? Pp. 37-50 *in* J. Talent (Ed.), *Earth and Life: Global Biodiversity, Extinction Intervals, and Biogeographic Perturbations Through Time, International Year of Planet Earth*. Springer, Berlin.
Note:article in volume one of few mentioned favorably in book review in Geological Magazine, November, 2012, p. 1133.
86. **Lieberman, B. S.**, and P. Cartwright. 2011. Macroevolutionary patterns and processes during the Cambrian radiation: Integrating evidence from fossils and molecules. *Açoreana* 7:15-38.
85. Congreve, C. R., and **B. S. Lieberman**. 2011. Phylogenetic and biogeographic analysis of sphaerexochine trilobites. *PloS One* 6:e21304.
84. **Lieberman, B. S**. 2011. Presentation of the 2008 Paleontological Society Medal to Niles Eldredge. *Journal of Paleontology* 85:806.
83. Gapp, I. W., **B. S. Lieberman**, M. C. Pope, and K. Dilliard. 2011. New olenelline trilobites from the Northwest Territories, Canada, and the phylogenetic placement of *Judomia absita*. *Zootaxa* 2918:15-28.
82. Myers, C., and **B. S. Lieberman**. 2011. Sharks that pass in the night: Using GIS to investigate competition in the Cretaceous Western Interior Seaway. *Proceedings of the Royal Society, Series B*. 278:681-689. doi: 10.1098/rspb.2010.1617.
81. Yu-nan, W., Di-ying, H., and **B. S. Lieberman**. 2010. New *Isoxys* (Arthropoda) from the Cambrian Mantou Formation, Shandong Province. *Acta Palaeontologica Sinica* 49:398-406.
80. Abe, F. R., **B. S. Lieberman**, M. C. Pope, and K. Dilliard. 2010. New information on olenelline trilobites from the Early Cambrian Sekwi Formation, northwestern Canada. *Canadian Journal of Earth Sciences* 47:1445-1449.
79. **Lieberman, B. S**., and T. S. Karim. 2010. Tracing the trilobite tree from the root to the tips: a model marriage of fossils and phylogeny. *Arthropod Structure & Development* 39:111-123.
78. Congreve, C. R., and **B. S. Lieberman**. 2010. Phylogenetic and biogeographic analysis of deiphonine trilobites. *Journal of Paleontology* 84:128-136.
Cover article
77. Dilliard, K., M. C. Pope, S. T. Hasiotis, and **B. S. Lieberman**. 2010. Active Synsedimentary Tectonism on a Mixed Carbonate-Siliciclastic Continental Margin: Third-Order Sequence

Stratigraphy of a ramp to basin transition, Lower Sekwi Formation, Selwyn Basin, Northwest Territories, Canada. *Sedimentology* 57:513-542.

76. Abe, F. R., and **B. S. Lieberman**. 2009. The Nature of evolutionary radiations: A case study involving Devonian trilobites. *Evolutionary Biology* 36:225-234.
75. Moore, R. A., and **B. S. Lieberman**. 2009. Preservation of Early and Middle Cambrian soft-bodied arthropods from the Pioche Shale, Nevada, USA. *Palaeogeography, Palaeoclimatology, Palaeoecology* 277:57-62.
74. Hendricks, J. R., **B. S. Lieberman**, and A. L. Stigall. 2008. Using GIS to study the paleobiogeography of soft-bodied Cambrian arthropods. *Palaeogeography, Palaeoclimatology, and Palaeoecology* 264:163-175.
73. Congreve, C. R., and **B. S. Lieberman**. 2008. Phylogenetic and biogeographic analysis of Ordovician homalonotid trilobites. *The Open Paleontology Journal* 1:24-32.
72. **Lieberman, B. S**. 2008. Stephen Jay Gould's evolving, hierarchical thoughts on stasis. Pp. 227-241 *in* W. D. Allmon, P. Kelley, and R. Ross (Eds.), *Stephen Jay Gould: Reflections on His View of Life*. Oxford University Press, New York.
71. **Lieberman, B. S**. 2008. The Cambrian radiation of bilaterians: Evolutionary origins and palaeontological emergence; earth history change and biotic factors. *Palaeogeography, Palaeoclimatology, Palaeoecology* 258:180-188.
70. **Lieberman, B. S**., and N. Eldredge. 2008. Punctuated equilibria. *Scholarpedia* 3(1): 3806 http://www.scholarpedia.org/article/Punctuated_equilibria .
69. Briggs, D. E. G., **B. S. Lieberman**, J. R. Hendricks, S. L. Halgedahl, R. D. Jarrard. 2008. Middle Cambrian arthropods from Utah. *Journal of Paleontology* 82:238-254.
68. Meert, J. G., and **B. S. Lieberman**. 2008. The Neoproterozoic assembly of Gondwana and its relationship to the Ediacaran-Cambrian Radiation. *Gondwana Research* 14:5-21 (Focus Paper).
    Note: One of the top 3 (ranked second) most cited articles according to Scopus, http://www.elsevier.com/wps/find/P06.cws_home/main#top3
67. **Lieberman, B. S**. 2008. Emerging syntheses between palaeobiogeography and macroevolutionary theory. Neil W. Archbold Memorial Publication, eds. G. R. Shi, D. McCann, J. Talent, and R. Peirson. *Proceedings of the Royal Society of Victoria* 120(1):51-57.
66. Hendricks, J. R., and **B. S. Lieberman**. 2008. New phylogenetic insights into the Cambrian radiation of arachnomorph arthropods. *Journal of Paleontology* 82:585-594.
65. **Lieberman, B. S.**, and S. T. Hasiotis. 2007. Memorial to Roger L. Kaesler (1937-2007). *Geological Society of America Memorials* 36:31-34.
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    Note, article featured in on or around October 30 - November 6, 2007
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    Nature, Research highlights, Vol. 450, 15 November 2007, p. 323
    Nat. Geographic News, http://news.nationalgeographic.com/news/2007/10/071031jellyfish.html
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    www.nytimes.com/2007/11/06/science/06objell.html?ex=1352091600&en=2648029a809334b2&ei=5088&partner=rssnyt&emc=rss
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    Geotimes, Research in the News, December 2007, vol. 52(12): 13.

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Yahoo! News, fe8.news.re3.yahoo.com/s/livescience/20071030/sc_livescience/oldestknownjellyfishfossilsfound
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35. Hendricks, J. R., S. L. Halgedahl, **B. S. Lieberman**, and R. D. Jarrard. 2006. Crown-group cnidarians from the Cambrian of Utah. *Geological Society of America Annual Meeting*, Philadelphia, PA, Abstracts with programs.
34. Abe, F., and **B. S. Lieberman**. 2006. Biogeography and rates of evolution during a taxic radiation: calmoniid trilobites (Devonian) of the Malvinokaffric Realm. Geological Society of America Annual Meeting, Philadelphia, PA, Abstracts with programs.
33. Dilliard, K., G, Hart, J. Vervoort, M. Pope, **B. S. Lieberman**, and S. T. Hasiotis. 2006. Determination of Sr-isotope composition of the Lower Cambrian Sekwi Formation, Northwest Territories, Canada, using solution chemistry and laser ablation. *Geological Society of America Annual Meeting*, Philadelphia, PA, Abstracts with programs.
32. Moore, R. A., and **B. S. Lieberman**. 2005. The Taphonomy of Lower and Middle Cambrian arthropods from the Pioche Shale of Nevada. *Geological Society of America Annual Meeting*, Abstracts with programs.
31. Dilliard, K., M. C. Pope, S. T. Hasiotis, and **B. S. Lieberman**. 2005. Integrated Carbon isotope curve, sea level history, and biostratigraphy for the Early Cambrian Sekwi Formation, Selwyn Basin, Northwest Territories, Canada, *Earth System Processes 2, Geological Society of America and Geological Association of Canada*, Abstracts with programs.
30. Briggs, D. E. G., and **B. S. Lieberman**. 2005. Soft bodied fossils from the Middle Cambrian of Utah, USA. *Fourth International Symposium on the Cambrian System*, Nanjing Institute of Paleontology, Nanjing, China, Abstracts with programs.
29. **Lieberman, B. S.** 2004. Did a Gamma Ray Burst initiate the late Ordovician mass extinction? *Geological Society of America Annual Meeting*, Abstracts with programs.
28. Dilliard, K. A., M. C. Pope, S. T. Hasiotis, and **B. S. Lieberman**. 2004. A new Carbon isotope curve for the early Cambrian Sekwi Formation, Selwyn Basin, Northwest Territories, Canada. *Geological Society of America Annual Meeting*, Abstracts with programs.
27. Cornette, J., and **B. S. Lieberman**. 2003. Random walks in the history of life. Geological Society of America Annual Meeting, Abstracts with programs.
26. Lieberman, B. S. 2003. Stephen Jay Gould: His evolving, hierarchical thoughts on stasis. *Geological Society of America Annual Meeting*, Abstracts with programs.
25. Hasiotis, S. T., **B. S. Lieberman**, M. C. Pope, and K. Dilliard. 2003. Earliest traces of life on land: arthropod trackways and other ichna in Early Cambrian (Nevadella zone) intertidal to supratidal deposits, Mackenzie Mountains, Northwest Territories, Canada. *Geological Society of America Annual Meeting*, Abstracts with programs.

24. Pope, M. C., K. A. Dilliard, S. T. Hasiotis, and **B. S. Lieberman**. 2003. Deep subtidal deposits, Early Cambrian Sekwi Formation, Northwest Territories, Canada. *Geological Society of America Annual Meeting*, Abstracts with programs.
23. Rode, A., and **B. S. Lieberman**. 2003. GIS and phylogenetics, a combined approach to understanding biogeographic changes in the Late Devonian. *Geological Society of America Annual Meeting*, Abstracts with programs.
22. Murphy, J., M. C. Pope, K. Dilliard, **B. S. Lieberman**, and S. T. Hasiotis. 2003. Early Cambrian algal, archaeocyathan, Tabulaconus mounds, Sekwi Formation, Selwyn Basin, Mackenzie Mountains, Canada. *Geological Society of America Annual Meeting*, Abstracts with programs.
21. **Lieberman, B. S**. 2003. Macroevolution, biogeography, and the search for congruence. *International Biogeography Society Inaugural Meeting*. Abstracts with programs, p. 3-4.
20. **Lieberman, B. S.** 2002. Paleobiogeography: From Evolution to Global Change. *Geological Society of America Annual Meeting*, Abstracts with programs.
19. Meert, J. G., and **B. S. Lieberman**. 2002. Paleogeography & biogeography in the Neoproterozoic: some hints about Rodinia. *Geological Society of America Annual Meeting*, Abstracts with programs.
18. Cornette, J. L., **B. S. Lieberman**, and R. H. Goldstein. 2002. A significant relationship between macroevolutionary origination rates and Phanerozoic PCO_2 levels. *Geological Society of America Annual Meeting*, Abstracts with programs.
17. **Lieberman, B. S.** 2002. Taking the pulse of the Cambrian radiation. *SICB Annual Meeting*, Abstracts with programs and American Zoologist 41:1506.
16. **Lieberman, B. S**. 2001. Using biogeography to constrain the timing of the Cambrian radiation. *Geological Society of America Annual Meeting*, Abstracts with programs: A430.
15. Rode, A., and **B. S. Lieberman**. 2001. New Early Cambrian bradoriida (Crustacea?) from Antarctica: Implications for bradoriid biogeography and evolution. *Geological Society of America Annual Meeting Annual Meeting*, Abstracts with programs: A379.
14. Rode, A., and **B. S. Lieberman**. 2001. Assessing the role of invasive species in mediating mass extinctions: a case study using Devonian phyllocarids. North American Paleontological Convention Abstracts with Programs, *PaleoBios* 21(2):A109.
13. **Lieberman, B. S**. 2001. Using phylogenetic palaeobiogeography of trilobites to study Cambrian global change. *3rd International Conference on Trilobites and Their Relatives*. April 4, 2001, Oxford, United Kingdom. Abstracts, p. 21.
12. **Lieberman, B. S.** 2000. Quantitative paleontological approaches to reconstructing tectonic events involving Gondwanan cratons. American Geophysical Union Fall Meeting, Abstracts.San Francisco, *EOS Transactions AGU*, 81(48).
11. **Lieberman, B. S**. 2000. A new Early Cambrian Lagerstatten and Disparate Selectivities During Cambrian Extinctions. *Geological Society of America Annual Meeting*, Abstracts with programs: A301.
10. Rode, A., and **B. S. Lieberman**. 2000. Using GIS and Phylogenetics to Study the Role of Invasive Species During the Late Devonian Biodiversity Crisis. *Geological Society of America Annual Meeting*, Abstracts with programs:A368.
9. **Lieberman, B. S**. 1999. Phylogenetic paleobiogeography: strengths, methods, and case studies. *Geological Society of America Annual Meeting*, Abstracts with programs: A138.
8. **Lieberman, B. S.** 1998. A Probabilistic Analysis of Rates of Evolution During the Cambrian Radiation. *Geological Society of America Annual Meeting*, Abstracts with programs:A233.
7. Smith, L. H., and *Geological Society of America Annual Meeting*. 1998. Disparity of the Olenelloid Trilobites and the Cambrian Radiation. *Geological Society of America Annual Meeting*, Abstracts with programs:A233.

6. **Lieberman, B. S.** 1997. Early Cambrian Cladistic Biogeography, 1997. *Geological Society of America Annual Meeting* Abstracts with programs:A30.
5. **Lieberman, B. S.** and E. S. Vrba. 1995. Evolutionary and biogeographic impacts of the Acadian orogeny on eastern North American trilobite clades. *Geological Society of America Northeastern Sectional Meeting*, Abstracts with programs: 64-65.
4. **Lieberman, B. S.** 1994. Patterns and processes of stasis in species-lineages. *Geological Society of America Annual Meeting*, Abstracts with programs: A454.
3. **Lieberman, B. S**. 1994. Patterns and processes of stasis in species-lineages. *Geological Society of America Northeastern Sectional Meeting*, Abstracts with programs: 32.
2. **Lieberman, B. S**., W.D. Allmon, and N. Eldredge. 1992. Phylogenetic Trends and Speciation: Analyzing Macroevolutionary Processes. *Geological Society of America Annual Meeting*, Abstracts with Programs:A139.
1. **Lieberman, B. S**., W.D. Allmon, and N. Eldredge. 1992. Levels of Selection: An Analysis of the Forces Driving Diversification in the Turritellid Gastropods. North American Paleontological Convention, *Paleontological Society Special Publication* 6:185.

TALKS

INVITED SYMPOSIA AND TALKS

91. Chance and predictability in the history of life. *Quantiative Lunch*, *Kansas Biological Survey*, Lawrence, KS, March 8, 2017.
90. The Cretaceous World-TCN. Integrated Digitized Biocollections (iDigBio) Summit VI, *Tech Town*, Chattanooga, TN, November 2, 2016 (all expenses paid).
89. The Paleoniches-TCN. Integrated Digitized Biocollections (iDigBio) Summit VI, *Tech Town*, Chattanooga, TN, November 2, 2016 (all expenses paid).
88. Chance and uncertainty in the history of life. *Pensar La Muerta*, *Libertad Por El Saber*, *El Colegio Nacional*, Mexico City, Mexico, October 21, 2016 (all expenses paid).
87. Presentation of the Charles Schuchert Award. *Paleontological Society Reception,* Denver, CO, September 25, 2016.
86. The Paleoniches Thematic Collections Network. Integrated Digitized Biocollections (*iDigBio*) Using Biodiversity Specimen-Based Data to Study Global Change Workshop, *Missouri Botanical Garden*, St. Louis, MO, December 2, 2015 (all expenses paid).
85. Digital fossils: there's an App for that. Topical session on using digitized data in geological and paleontological research I. *Geological Society of America Annual Meeting*, Baltimore, MD, November 3, 2015.
84. The biogeography of 'sluggish' evolution: the impact of geographic range size on extinction selectivity in Pennsylvanian brachiopods of the North American midcontinent. Topical session on using digitized data in geological and paleontological research I. *Geological Society of America Annual Meeting*, Baltimore, MD, November 3, 2015 (presented by M. Casey).
83. Chance and uncertainty in evolution. *Festival delle Scienze Rome* (Roman Science Festival), Rome, Italy, January 24, 2015 (all expenses paid).
82. Data, digitization, and discovery in the Paleoniches-TCN. Topical session on advancing the digitization of paleontology and geoscience collections: projects, programs, and practices I. *Geological Society of America Annual Meeting*, Vancouver, British Columbia, October 22, 2014 (presented by M. Casey).
81. The Paleoniches TCN: An Overview. *Paleo-specific Specify Workshop*. Lawrence, KS, May 20, 2014.
80. Adaptive radiations in the context of macroevolutionary theory. Topical session on the coevolution of the Earth and Life: The role of the physical environment in species

evolution. *Geological Society of America Annual Meeting*, Denver, CO, October 27, 2013.

79. Macroevolutionary consequences of profound climate change on niche evolution: An examination of marine mollusks over the past 3 million years. Topical session on the coevolution of the Earth and Life: The role of the physical environment in species evolution. *Geological Society of America Annual Meeting*, Denver, CO, October 27, 2013 (presented by E. Saupe).
78. Biogeographic responses of mollusk species to Plio-Pleistocene environmental change in the western Atlantic. Topical session on the coevolution of the Earth and Life: The role of the physical environment in species evolution. *Geological Society of America Annual Meeting*, Denver, CO, October 27, 2013 (presented by J. Hendricks).
77. Paleo-ENM: A valuable quantitative tool for understanding the coevolution of the Earth and of life. Topical session on the coevolution of the Earth and Life: The role of the physical environment in species evolution. *Geological Society of America Annual Meeting*, Denver, CO, October 27, 2013 (presented by C. Myers).
76. Introduction to a TCN: Paleoniches. *Society for the Preservation of Natural History Collections Annual Meeting*, South Dakota School of Mines and Technology, June 17-22 2013 (presented by U. Farrell).
75. Five two hour lectures on a range of topics from *Applying Biodiversity Science to Paleontology*, to *Stasis*, to *Astrobiology*, to *Phylogenetic Biogeography*, to the *History of Biogeography*, to *Evidence for Periodicity in the Fossil Record*, to the *Nature of Evolutionary Radiations*, all part of a short course emphasizing Macroevolution at the *1st International Winter School on Evolution* (all expenses paid). *University of Lisbon, Portugal*, March 11-15, 2013.
74. Comparing and contrasting parsimony and maximum likelihood approaches to paleontological phylogenetics using trilobites as a model system. Topical session on the origins of arthropod diversity. *Geological Society of America Annual Meeting*, Charlotte, NC, November 6, 2012 (presented by I. W. Gapp).
73. The PALEONICHES-TCN. Integrated Digitized Biocollections (iDigBio) Summit II, *Florida Museum of Natural History*, Gainesville, FL, October 22, 2012.
72. Applying biodiversity science to paleontology. Department of Ecology & Evolutionary Biology, *University of Kansas*, Lawrence, KS, September, 11, 2012.
71. Applying biodiversity science to paleontology. Department of Ecology, Evolution, and Organismal Biology, *Iowa State University*, Ames, IA, August, 30, 2012.
70. Applying biodiversity science to paleontology. Integrated Digitized Biocollections (iDigBio) Paleo Workshop Keynote speaker, *Florida Museum of Natural History*, Gainesville, FL, April, 28, 2012.
69. Applying biodiversity science to paleontology. Department of Evolution, Ecology, and Organismal Biology, *Ohio State University*, Columbus, OH, March, 8, 2012.
68. Tempo and mode in evolution reframed in the light of phylogenetic thinking. Topical session on species and speciation in the fossil record. *Geological Society of America Annual Meeting*, Minneapolis, MN, October, 10, 2011.
67. Quantifying catastrophe: estimating speciation and extinction rates in trilobites during the end Ordovician mass extinction event. Topical session on phylogenetic approaches to paleobiology: diversity, rates and trends. *Geological Society of America Annual Meeting*, Minneapolis, MN, October, 9, 2011 (presented by C. Congreve).
66. Building phylogenetic trees for trilobites using maximum likelihood. Topical session on phylogenetic approaches to paleobiology: diversity, rates and trends. *Geological Society of America Annual Meeting*, Minneapolis, MN, October, 9, 2011 (presented by I. W. Gapp).

65. Climate change and marine mollusks: a tale of invasions, immigration, and extirpation. Topical session on whole organism paleoecology: exploring ecology through time. *Geological Society of America Annual Meeting*, Minneapolis, MN, October, 11, 2011 (presented by E. Saupe).
64. True is it that we have seen better days? Biogeography and survivorship in the Cretaceous Western Interior Seaway. Topical session on whole organism paleoecology: exploring ecology through time. *Geological Society of America Annual Meeting*, Minneapolis, MN, October, 11, 2011 (presented by C. Myers).
63. Application of Raman spectroscopy on Burgess Shale type preservation. Topical session on new ideas on studying exceptionally preserved fossils: what to do next? *Geological Society of America Annual Meeting*, Minneapolis, MN, October, 9, 2011 (presented by R. Wehrbein).
62. Darwin, fossils, and evolution. *KU Mini College*, The Commons, Lawrence, KS, June 8, 2011.
61. Applying biodiversity science to paleontology. Florida Museum of Natural History, *University of Florida*, Gainesville, FL, March 17, 2011.
60. From natural history to biodiversity studies: paleontological data enabling new syntheses in ecology and evolution. Topical session on geological and paleobiological collections: best practices for preservation, access, and use in a changing world. *Geological Society of America Annual Meeting*, Denver, CO, November, 3, 2010.
59. Using GIS to investigate bias in the fossil record: a case study of the late Cretaceous Western Interior Seaway of North America. Topical session on paleontology, paleobiogeography, and stratigraphy of the Late Cretaceous North American seas: a tribute to Bill Cobban. *Geological Society of America Annual Meeting*, Denver, CO, November, 2, 2010 (presented by C. Myers).
58. Raman spectroscopic insights into Burgess Shale-type preservation. Topical session on Lagerstätten through time: an examination of exceptional preservation pathways from the terminal Proterozoic through today. *Geological Society of America Annual Meeting*, Denver, CO, November, 2, 2010 (presented by A. Marshall Olcott).
57. Macroevolution: On the birth, death, and persistence of species. Symposium S2 Macroevolution and the modern synthesis, *International Palaeontological Congress* (*IPC3*), London, United Kingdom , July 2, 2010.
56. Macroevolution and paleontology: Expanding Darwinism. International Darwin Day Guest Speaker, *University of Minnesota*, Duluth, MN, February 11, 2010.
55. Darwin, the fossil record, and evolution. *Washburn University*, Topeka, KS, November 12, 2009.
54. Darwin, geology, and the growth of macroevolutionary theory. Topical session on Darwin, Geology and Evolution: Impact of Darwinian views on scientific theory-making. *Geological Society of America Annual Meeting*, Portland, OR, October, 19, 2009.
53. Macroevolution and paleontology: Expanding Darwinism. Symposium called "Darwin's Mistake and what we are doing to correct it" (all expenses paid). *University of the Azores, Ponta Delgada, Azores, Portugal*, September 21, 2009.
52. Studying tempo and mode in evolutionary radiations: An integrated, quantitative approach. Topical Session on Integrative Systematic Paleontology for a New Century: Advancing Evolutionary, Phylogenetic, Biogeographic, and Ecologic Theory with Specimen-Based Studies. *Geological Society of America Annual Meeting, Houston, TX*, October 9, 2008 (presented by F. Abe).
51. Paleontological Society Medal citation for Niles Eldredge, Paleontological Society 2008 Awards Reception, *Geological Society of America Annual Meeting, Houston, TX*, October 6, 2008.

50. Paleobiogeography in Deep Time: Evolution in the Fossil Record. Short Course on Biogeography (all expenses paid). *University of the Azores, Ponta Delgada, Azores, Portugal*, September 15-19, 2008.
49. Building the Tree of Life: Using Evolutionary Patterns to Reconstruct the Evolutionary Process. B. S. Lieberman and E. O. Wiley. *Tree of Life Symposium, Spooner Hall, University of Kansas*, March 4, 2008.
48. The fossil contribution for the understanding of Metazoan evolution. *Brazilian Congress of Zoology*, Invited Plenary Speaker (all expenses paid), February 20, 2008, *Curitiba, Brazil*.
47. Using GIS to study the paleobiogeography and macroevolution of soft-bodied Cambrian arthropods. Topical Session on Selectivity of ancient and modern extinctions: bridging the gap between neontological prediction and paleontological observation. *Geological Society of America Annual Meeting,* Denver, CO, October 30, 2007 (presented by J. Hendricks).
46. Exploring major patterns in the history of animal life. *Geological Society of America Joint North Central/South Central Sectional Meeting*, Roger L. Kaesler-Scientist and editor: his contributions to paleontology through research and the Treatise on Invertebrate Paleontology (S2). Sponsored by the Paleontological Society, *Lawrence, KS*, April 12, 2007
45. Macroevolutionary Synthesis: Fossils, Life and the Environment. Invited speaker at symposium on Hierarchy Theory and Evolution, *Festival della Scienza, Genoa, Italy*, November 4, 2006.
44. Citation for Roger L. Kaesler's Geological Society of America Distinguished Service Award, Presidential Address and Awards Ceremony. *Geological Society of America Annual Meeting, Philadelphia, PA*, October 21, 2006,
43. Biogeographic Patterns and Evolutionary Processes During the Cambrian Radiation. Invited key note speaker, symposium on Palaeobiogeography at the *Second International Palaeontological Congress, Peking University, Beijing, China*, June 21, 2006.
42. Biogeography in Deep Time: Evolution in the Fossil Record. *Iowa State University, Ames, Iowa*, April 14, 2006.
41. Paleobiogeography: Tracking the coevolution of the Earth and its biota. Introduction to Paleontological Society sponsored short course on Paleobiogeography: Generating New Insights into the Coevolution of the Earth and Its Biota. Held immediately before the *Geological Society of America Annual Meeting, Salt Lake City, UT*, October 15, 2005 (with Alycia Stigall Rode).
41. Earth history change: The pacemaker of evolution. Paleontological Society sponsored short course on Paleobiogeography: Generating New Insights into the Coevolution of the Earth and Its Biota. Held immediately before the *Geological Society of America Annual Meeting, Salt Lake City, UT*, October 15, 2005.
40. The Taphonomy of Lower and Middle Cambrian arthropods from the Pioche Shale of Nevada. Topical session "Paleoenvironments and taphonomy of Cambrian lagerstatten" at the *Geological Society of America Annual Meeting, Salt Lake City, UT*, October 19, 2005 (presented by R. Moore).
39. Soft bodied fossils from the Middle Cambrian of Utah, USA. *Fourth International Symposium on the Cambrian System,* August 18th, 2005, Keynote lecture, *Nanjing Institute of Paleontology, Nanjing, China* (presented by Derek Briggs).
38. Session chair, introductory speaker and discussant, session "What is evolution?" *World Summit on Evolution, Galapagos, Ecuador*, June 9-12, 2005.
37. The Cambrian Radiation: Investigating Biology's Big Bang. *Palaeontological Institute, University of Zurich, Switzerland*, May 31, 2005.

36. Biogeography in Deep Time: Evolution in the Fossil Record. *Institute for Systematic Botany, University of Zurich, Switzerland,* May 30, 2005.
35. The Cambrian Radiation: Investigating Biology's Big Bang. Seminar series, *Department of Geosciences, University of Iowa, Iowa City, IA*, April 8, 2005.
34. Did a Gamma Ray Burst initiate the late Ordovician mass extinction? *Western Interior Paleontological Society Symposium*, March 12, 2005, *Colorado School of Mines, Golden, CO* (presented by W. K. Berry).
33. Paleobiogeography, Workshop on Historical Biogeography at the *International Biogeography Society meeting*, January 5, 2005, *National Conservation Training Center, Shepherdstown, WV*.
32. A new Carbon isotope curve for the Early Cambrian Sekwi Formation, Selwyn Basin, Northwest Territories, Canada. Topical session "Ocean chemistry through the Precambrian and Paleozoic" at the *Geological Society of America Annual Meeting*, *Denver, CO* November 10, 2004, (presented by K. Dilliard).
31. Did a Gamma Ray Burst initiate the late Ordovician mass extinction? Pardee Keynote Symposium on "Pre-Mesozoic Impacts" at the *Geological Society of America Annual Meeting, Denver, CO*, November 9, 2004.
30. Biogeography and the Nature and timing of the Cambrian radiation, *Paleontological Society Short Course, Denver, CO*, November 6, 2004.
29. Biogeography in Deep Time: Evolution in the Fossil Record. *Yale Institute for Biospheric Studies Seminar Series, Yale University, New Haven, CT*, October 22, 2004.
28. Distinguished Visiting Speaker Program, *California State University, Northridge*, April 29, 2004 "Stasis and stabilizing selection: evaluating mechanisms of stasis" and April 30, 2004 "The Cambrian radiation: Investigating biology's big bang".
27. Stephen Jay Gould: His evolving, hierarchical thoughts on stasis. Pardee Keynote Symposium on "His view of life: Reflections on the scientific legacy of Stephen J. Gould" at the *Geological Society of America Annual Meeting, Seattle, WA*, November 2, 2003.
26. Earliest traces of life on land: arthropod trackways and other ichna in Early Cambrian (*Nevadella* zone) intertidal to supratidal deposits, Mackenzie Mountains, Northwest Territories, Canada. Topical session "New perspectives on Neoproterozoic-Early Paleozoic development of western Laurentia: in honor of John Cooper" at the *Geological Society of America Annual Meeting, Seattle, WA*, November 4, 2003 (presented by S. Hasiotis).
25. Deep subtidal deposits, Early Cambrian Sekwi Formation, Northwest Territories, Canada. Topical session "New perspectives on Neoproterozoic-Early Paleozoic development of western Laurentia: in honor of John Cooper" at the *Geological Society of America Annual Meeting, Seattle, WA*, November 4, 2003 (presented by M. Pope).
24. GIS and phylogenetics, a combined approach to understanding biogeographic changes in the Late Devonian. Topical session "Understanding Late Devonian biotic, climatic and oceanographic events: Toward an integrated approach" at the *Geological Society of America Annual Meeting, Seattle, WA*, November 4, 2003 (presented by A. Rode).
23. The Cambrian radiation: Investigating paleontology's big bang. *Cornell University, symposium for the opening of the Museum of the Earth*, *Ithaca, NY*, October 6, 2003.
22. Macroevolution, biogeography, and the search for congruence. *International Biogeography Society Inaugural Meeting, Mesquite, NV*, January 5, 2003.
21. Organized Topical Session at *Geological Society of America Annual Meeting*, Paleobiogeography: Integrating Plate Tectonics and Evolution (T81). Sponsored by the Paleontological Society, *Denver, CO*, October 28, 2002.
20. Paleobiogeography: From Evolution to Global Change. *Geological Society of America Annual Meeting, Denver, CO* topical session- Paleobiogeography: Integrating Plate Tectonics and Evolution (T81). October 28, 2002.

19. Investigating Biology's Big Bang. *University of Arkansas, Fayetteville, Department of Geosciences Seminar Series*, February 22, 2002.
18. Biogeography and Rates of Evolution. *University of Chicago, Evolutionary Morphology Seminar Series*, February 7, 2002.
17. Taking the Pulse of the Cambrian radiation. *Society for Integrative and Comparative Biology (SICB). Anaheim, CA*, January 6, 2002.
16. Assessing the role of invasive species in mediating mass extinctions: a case study using Devonian phyllocarids. *North American Paleontological Convention, Berkeley, CA*, June, 2001 (A. Rode presented).
15. The Cambrian Radiation: Understanding Biology's Big Bang. *Department of Geology, Brigham Young University, Provo, UT*, March 1, 2001.
14. Quantitative paleontological approaches to reconstructing tectonic events involving Gondwanan cratons. *American Geophysical Union Fall Meeting*, Tectonophysics Symposium (T07), *San Francisco, CA,* December 19, 2000 (A. Rode presented).
13. Biogeography with and without the fossil record. *Evolutionists' Society, Lawrence, KS*, November 2, 1999.
12. Phylogenetic paleobiogeography: strengths, methods, and case studies. *Geological Society of America Annual Meeting*, *Denver, CO*, Paleontological Society theme session- Beyond Phylogeny Reconstruction: Tree-Based Analyses in Paleontology, October 25, 1999.
11. Presentation of the Strimple Award. *Paleontological Society Luncheon, Toronto, Canada*, October 27, 1998.
10. Deep History Biogeography. *University of Toronto Symposium on Biogeography, Toronto, Canada*, October 24, 1998.
9. Using Biogeography to Study Paleogeographic Patterns and Geological Processes. *University of Texas at Arlington, Geology Seminar Series*, December 4, 1997.
8. A Probabilistic Analysis of the Cambrian Radiation, and Using Phylogenies to Study Evolutionary Patterns and Processes. *2nd International Trilobite Conference, St. Catherines, Ontario*, August 22 and 23 1997.
7. Biogeographic Patterns and Geological Processes. *University of Toronto, Evolutionary Biology Seminar Series, Toronto, Canada,* October 2, 1996.
6. Testing Faunal Origination and Stability in the Hamilton Group Using Phylogenetic Analysis. *North American Paleontological Convention. Symposium on Community Unity. Washington, D.C.*, June 11, 1996.
5. Biogeography and Evolutionary Patterns in Trilobite Clades of Eastern North America During the Middle Devonian Acadian Orogeny. *Symposium on Appalachian Biogeography. Virginia Polyttechnic Institute, Blacksburg, VA*, June 27, 1995.
4. Evolutionary and Biogeographic Impacts of the Acadian Orogeny on Eastern North American Trilobite Clades. *Geological Society of America, Northeastern Sectional Meeting, Hartford, CT*. Paleontological Society Symposium on Biotic Responses to Tectonic-Environmental Events. March 21, 1995.
3. Patterns and Processes of Stasis and Change in Species-Lineages. *Geological Society of America Annual Meeting, Seattle, WA*. Paleontological Society Theme Session on New Perspectives on Faunal Stability. October 27, 1994.
2. Patterns and Processes of Stasis and Change in Hamilton Group Species-Lineages. *Geological Society of America, Northeastern Sectional Meeting, Binghamton, NY*. Paleontological Society Symposium on Variation in Fossil Taxa. March 29, 1994.
1. Phylogenetic Trends and Speciation. Paleontological Society Symposium on Speciation in the Fossil Record. *Geological Society of America Annual Meeting, Cincinnati, OH*, October 27, 1992.

OTHER SCIENTIFIC PRESENTATIONS

33. Late middle Cambrian (Stage 3) shallow shelf succession in the Patuxent Range, Antarctica. *Geological Society of America Northeast/Northcentral Meeting*, Pittsburgh, PA, March 20, 2017 (poster presented by K. Evans with several other co-authors).
32. Maximum likelihood and trilobites: a new approach to phylogenetic analyses of fossil taxa. *Geological Society of America Annual Meeting*, Baltimore, MD, November 3, 2015 (presented by L. Heins).
31. Paleoniches: using collection data to study species' distribution through time. *Paleontological Association Annual Meeting*, *University College, Dublin, Ireland*, Dec 16th-18th, 2012 (presented by U. Farrell).
30. Declining volatility, a macroevolutionary property of disparate systems: from fossils, to stocks, to the stars. *Geological Society of America Annual Meeting*, Charlotte, NC, November 5, 2012.
29. New insights into the evolutionary history and biogeography of the Early Cambrian olenelline trilobites. *Geological Society of America Annual Meeting*, Portland, OR, October 21, 2009 (presented by I. W. Gapp).
28. The nature of evolutionary radiations: abiotic factors as mechanisms. *Geological Society of America Annual Meeting*, Portland, OR, October 20, 2009 (presented by F. Abe).
27. Testing the controls on species' distributions in the fossil record: competition and biogeography in the Western Interior Seaway. *Geological Society of America Annual Meeting*, Portland, OR, October 19, 2009 (presented by C. Myers).
26. Biogeographic and phylogenetic patterns of two groups of cheirurid trilobites during the end Ordovician mass extinction. *Geological Society of America Annual Meeting*, Portland, OR, October 19, 2009 (presented by C. Congreve).
25. Raman imaging of Early and Middle Cambrian soft-bodied arthropods from the Pioche Shale, Nevada, U.S.A. *Walcott, 2009, Charles D. Walcott and the Discovery of the Burgess Shale, An International Conference on the Cambrian Explosion, Banff, Alberta, Canada*, August 5, 2009 (presented by C. Marshall).
24. Considering the case for biodiversity cycles: reexamining the evidence for periodicity in the fossil record. *Geological Society of America Annual Meeting, Denver, CO*, October 31, 2007.
23. Investigating evolutionary radiations using morphometrics, biogeography, and speciation rates: a case study involving Devonian trilobites. *Geological Society of America Annual Meeting, Denver, CO*, October 28, 2007 (presented by F. Abe).
22. Spectral analysis of biodiversity cycles and galactic dynamics. *American Physical Society April Meeting, Jacksonville, FL*, April 14, 2007 (presented by A. L. Melott).
21. New insights into the Cambrian radiation: phylogenetic patterns in Cambrian arachnomorphs (Arthropoda). *Geological Society of America Annual Meeting, Philadelphia, PA*, October 24, 2006, (presented by J. Hendricks).
20. Reconstructing the Cambrian radiation. *Geological Society of America Annual Meeting, Philadelphia, PA*, October 24, 2006, (presented by J. Lipps).
19. Crown-group cnidarians from the Cambrian of Utah. *Geological Society of America Annual Meeting, Philadelphia, PA*, October 24, 2006.
18. Biogeography and rates of evolution during a taxic radiation: calmoniid trilobites (Devonian) of the Malvinokaffric Realm. *Geological Society of America Annual Meeting, Philadelphia, PA*, October 25, 2006 (presented by F. Abe).
17. Determination of Sr-isotope composition of the Lower Cambrian Sekwi Formation, Northwest Territories, Canada, using solution chemistry and laser ablation. *Geological Society of America Annual Meeting, Philadelphia, PA*, October 25, 2006, (poster presented by K. Dilliard with several other co-authors).
16. Integrated Carbon isotope curve, sea level history, and biostratigraphy for the Early Cambrian Sekwi Formation, Selwyn Basin, Northwest Territories, Canada, Earth System Processes

2, *Geological Society of America and Geological Association of Canada, August 9, 2005, Calgary, Alberta, Canada* (poster presented by K. Dilliard with several other co-authors).

15. Random walks in the history of life. *Geological Society of America Annual Meeting, Seattle, WA*, November 4, 2003 (presented by J. Cornette).
14. Early Cambrian algal, archaeocyathan, *Tabulaconus* mounds, Sekwi Formation, Selwyn Basin, Mackenzie Mountains, Canada. *Geological Society of America Annual Meeting, Seattle, WA*, November 5, 2003 (poster presented by J. Murphy with several other co-authors).
13. Paleogeography & biogeography in the Neoproterozoic: some hints about Rodinia. *Geological Society of America Annual Meeting, Denver, CO*, October 28, 2002 (presented by J. Meert).
12. A significant relationship between macroevolutionary origination rates and Phanerozoic PCO_2 levels. *Geological Society of America Annual Meeting, Denver, CO*, October 29, 2002 (presented by J. Cornette).
11. Hasiotis, S. T., K. A. Dilliard, and M. C. Pope. Using Ichnofossils to better understand depositional processes, facies relationships, and sequence stratigraphy in the Early Cambrian Sekwi Formation. *American Association of Petroleum Geologists Meeting,* Salt Lake City, UT, May 11-14, 2003.
10. Using biogeography to constrain the timing of the Cambrian radiation. *Geological Society of America Annual Meeting, Boston, MA*, November 8, 2001.
9. New Early Cambrian bradoriida (Crustacea?) from Antarctica: Implications for bradoriid biogeography and evolution. *Geological Society of America Annual Meeting, Boston, MA*, November 8, 2001 (presented by A. Rode).
8. Using phylogenetic palaeobiogeography of trilobites to study Cambrian global change. *3rd International Conference on Trilobites and Their Relatives. Oxford, United Kingdom*, April 4, 2001.
7. A new Early Cambrian Lagerstatten and Disparate Selectivities During Cambrian Extinctions. *Geological Society of America Annual Meeting, Reno, Nevada*, November 15, 2000.
6. Using GIS and Phylogenetics to Study the Role of Invasive Species During the Late Devonian Biodiversity Crisis (along with A. Rode). *Geological Society of America Annual Meeting, Reno, Nevada*, November 15, 2000.
5. A Probabilistic Analysis of Rates of Evolution During the Cambrian Radiation. *Geological Society of America Annual Meeting, Toronto, Canada*, October 28, 1998.
4. Disparity of the Olenelloid Trilobites and the Cambrian Radiation, *Geological Society of America Annual Meeting, Toronto, Canada*, October 28, 1998.
3. Early Cambrian Cladistic Biogeography. *Geological Society of America Annual Meeting, Salt Lake City, UT*, October 20, 1997.
2. Levels of Selection and Macroevolutionary Patterns in the Turritellid Gastropods. *North American Paleontological Convention, Chicago, IL*, July 1, 1992.
1. Cell-lineage Drive and Macroevolutionary Patterns in the Turritellid Gastropods. *Society for the Study of Evolution Annual Meeting, Berkeley, CA*, June 19, 1992.

POPULAR TALKS

22. Tour of KU Natural History Museum. September 2, 2016, *Raintree Montessori School* Students, tour of Museum exhibits and answering student questions.
21. *Red Hot Research*. Evolution: Life and the stock market. *University of Kansas, Commons* November 13, 2015.
20. *Topeka Science Cafe*. Chance and predictability in evolution. *Topeka*, *KS* September 8, 2015.
19. *Museum Studies Brown Bag Lecture Series*. Chance and uncertainty in evolution. *University of Kansas Student Union*, April 10, 2015.

18. *Society of Open-Minded Atheists and Agnostics*. Chance and uncertainty in evolution. *University of Kansas Student Union*, February 24, 2015.
17. *Collections Conversations*: Extinctions in the Fossil Record and What They Have in Common with Stock Prices and Stars in the Universe. April 17, 2014, *Biodiversity Institute, Dyche Hall*.
16. *Astrobiology Seminar Series:* Adaptive Radiations in the Context of Macroevolutionary Theory: A Paleontological Perspective. February 27, 2014, *University of Kansas*.
15. *Museum Studies Director's Forum*: Darwin, the Fossil Record, and Evolution. January 27, 2012, *University of Kansas Student Union*.
14. Science On Tap: Trilobites, Extinction, and Evolution. February 16, 2010, *Free State Brewery*, Lawrence, KS.
13. The Cambrian Explosion. January 24th, 2010, Kansas City, MO. *The Kansas and Missouri Paleontological Society* Second Annual Dinner and Lecture.
12. Charles Darwin: Galloping Gourmand? November 20th, 2009, Darwin Cabaret, *University of Kansas Commons*.
11. Trilobites. February 12, 2009, *Raintree Montessori School* Students, tour of Museum facilities emphasizing trilobite collections.
10. Darwin, Evolution, and the Fossil Record. Wild Science Series, *KU Natural History Museum*, February 4, 2009.
9. Cambrian Life. October 9, 2008, *Raintree Montessori School*, Lawrence, KS.
8. Dinosaurs, What Did They Look Like and How Did They Evolve? October 9, 2006, *Raintree Montessori School*, Lawrence, KS.
7. Fossils and Geological Time, April 25, 2005, *Raintree Montessori School*, Lawrence, KS.
6. African Dinosaurs, December 3, 2004, *New England School of Montessori*, Milford, CT.
5. Dinosaurs and other fossils. March 3, 2003, *Raintree Montessori School*, Lawrence, KS.
4. The Fossils Speak: The Evidence for Darwin's Theory. July 9, 2000, *University of Kansas Natural History Museum*.
3. The Cambrian Radiation: Investigating Biology's Big Bang. November 27, 1999, *Yale University Peabody Museum of Natural History*, New Haven, CT.
2. Trilobites and biogeography. August 29, 1999, *Kansas-Missouri Paleontological Society*.
1. Cell-lineage selection and the evolution of Tertiary gastropods. June, 1991, *New York Paleontological Society*.

MENTORING

GRADUATE STUDENTS (M.S.) WHOSE COMMITTEE I HAVE CHAIRED

2015–present	Kayla Kolis M.S.
2014–2016	Liam Heins M.S., (co-advised with Mark Holder), M.S. 2016
2008–2012	Sarah Spears Gibson, (co-advised with Hans-Peter Schultze), M.S. 2012, currently Ph.D. student, University of Kansas
2007–2009	Ian Wes Gapp, M.S. 2009, currently Research scientist, Chevron/Texaco
2006–2008	Curtis Congreve, M.S. with Honors 2008, currently Post-doc, Pennsylvania State University
2001–2002	Jim Cornette, M.S. with Honors 2002, currently Emeritus University Professor, Iowa State University
1999–2001	Alycia Rode (now Stigall), NSF Graduate Student Fellow, M.S. with Honors 2001, currently Professor, Department of Geology, Ohio University

GRADUATE STUDENTS (PH.D.) WHOSE COMMITTEE I HAVE CHAIRED

2010–2014 Erin Saupe, Self Graduate Fellow (co-advise with Paul Selden), Ph.D. with honors, awarded April 2014, currently Associate Professor, Oxford University
2009–2014 Ian Wes Gapp, Ph.D. awarded Spring 2014, currently Research scientist, Chevron/Texaco
2009–2013 Curtis Congreve, Ph.D. awarded Spring 2013, currently Post-doc, Pennsylvania State University
2007–2013 Corinne Myers, Madison and Lila Self Graduate Fellow, Ph.D. with honors, awarded Spring 2013, currently Assistant Professor, Department of Geology, University of New Mexico
2004–2010 Francine Abe (Department of Ecology and Evolutionary Biology, co-advised with Ed Wiley), Ph.D. with honors, awarded Spring 2010
2001–2004 Alycia Rode (now Stigall), NSF Graduate Student Fellow and Madison and Lila Self Fellow, Ph.D. with Honors, currently Professor, Department of Geology, Ohio University

GRADUATE STUDENTS (PH.D.) WHOSE COMMITTEE I HAVE SERVED ON AS AN EXTERNAL REVIEWER

2008 Talia Karim, University of Iowa
2005 John Paterson, Macquarie University, Australia

POST-DOCTORAL FELLOWS MENTORED

2016– Luke Strotz, Ph.D. Macquarie University
2013–2015 Michelle Casey, Ph.D. Yale University, Currently Assistant Professor, Department of Geosciences, Murray State University, Kentucky
2005–2008 Jonathan Hendricks, Ph.D. Cornell University, Currently Director of Publications, Paleontological Research Institution, Ithaca, NY
2005–2006 Rachel (Moore) Wade, Ph.D. University of Bristol (U.K.), Currently Commissioning Editor, John Wiley & Sons, Oxford, UK

GRADUATE STUDENTS (M.A.) IN MUSEUM STUDIES ADVISED

2014–2016 Brittney Oleniacz, Master's in Museum Studies 2016, currently Ph.D. student, University of Kansas
2014–2016 Ryan Ridder, Master's in Museum Studies 2016, currently Ph.D. student, University of Kansas
2011–2013 Ben Miller, Master's in Museum Studies with Honors 2013, Dinosaur Park Museum Program Manager at Maryland-National Capital Park and Planning Commission
2011–2013 Megan Perez, Master's in Museum Studies 2013, currently Visitor Services at Museum of Prairiefire and Associate Scientist HydroGeoLogic, Olathe, KS
2010–2011 Cristina Chavez, Master's in Museum Studies 2011, currently Exhibits Project Manager, Corpus Christi Museum of Science and History
2009–2011 Amanda Millhouse, Master's in Museum Studies 2011, currently collections management staff, Department of Paleobiology, USNM
2007–2010 Soo Hyun Kim, Master's in Museum Studies with Honors 2010, currently Ph.D. student, University of Wisconsin
2006–2007 Robert Elder, Master's in Museum Studies 2007, currently registrar, National Museum of the Pacific War
2003–2005 Erika Dickey, Master's in Museum Studies with Honors 2005, currently Head of Inventory Records Management, University of Kansas Libraries

GRADUATE STUDENTS (M.S. AND PH.D.) WHOSE COMMITTEE I HAVE SERVED ON

Joe Andrew	1998-2002 Ph. D. awarded with honors 5/02
Rod Pellegrini	1998-2003 M.S. awarded 12/03
Kristina Watabe	2001-2001 M.S. awarded 12/01
Jess Cundiff	1999-2001 M.S. awarded 3/01
Tom Stanley	1999-1999 Ph.D. with honors
Dan Hembree	2002-2005 Ph.D. with honors 5/05
Tim Perkins	2003-2004 M.S. candidate
Sara Marcus	1998-2002 Ph.D. candidate
Jon Smith	2003-2007 Ph.D. awarded 12/07
Brian Platt,	2005-2012 Ph.D. with honors 4/12
Emily Tremain	2005-2011 M.S. candidate
Celina Suarez	2005-2011 Ph.D. with honors 5/11
Marina Suarez	2005-2009 Ph.D. with honors 8/09
David LoBue	2007-2009 M.S. candidate
Erin Saupe	2007-2009 M.S. with honors, 2009-2010 Ph.D. candidate
Jul Ruth Emry	2010-2012 M.S. candidate
Karen Ohmes Lechtenberg	2010-2015, M.S. awarded 12/15
Alvin Bonilla	2008-2014 Ph.D. awarded 9/14
James Lamsdell	2010-2014 Ph.D. awarded with honors 4/14 (outside committee member, Department of Geology)
Randol Wehrbein	2010-present M.S. candidate (outside committee member, Department of Geology)
Brendan Anderson	2011-2013, M.S. awarded 6/13 (outside committee member, Department of Geology)
Chris Sheil	1998-2000 (outside committee member, Department of Ecology and Evolutionary Biology)
Rafa Rodriguez	2000-2002 (outside committee member, Department of Ecology and Evolutionary Biology), Ph.D. awarded 5/02
Kevin Tang	1998-2002 (outside committee member, Department of Ecology and Evolutionary Biology), Ph.D. awarded 9/02
Nancy Holcroft	2000-2002 (outside committee member, Department of Ecology and Evolutionary Biology)
Stylianos Chatzimanolis	2000-2004 (outside committee member, Department of Ecology and Evolutionary Biology), Ph.D. awarded 5/04
Kathryn Mickle	2006-2012 (outside committee member, Department of Ecology and Evolutionary Biology), Ph.D. awarded with honors 4/12
Brian Thomas	2005-2005 (outside committee member, Department of Physics and Astronomy), Ph.D. awarded with honors 5/05
Eli Greenbaum	2005-2006 (outside committee member, Department of Ecology and Evolutionary Biology), Ph.D. awarded with honors 1/06
Harim Cha	2002-2007 (outside committee member, Department of Ecology and Evolutionary Biology)
Anna Clark	2004-2007 (outside committee member, Department of Ecology and Evolutionary Biology), Ph.D. awarded 7/07
Shannon Devaney	2004-2008 (outside committee member, Department of Ecology and Evolutionary Biology), Ph.D. awarded fall 2008
Dan Williams	2005-2009 (outside committee member, Department of Ecology and Evolutionary Biology), Ph.D. awarded 8/09
Daniel Bennett	2006-2010 (outside committee member, Department of Ecology and Evolutionary Biology), Ph.D. awarded with honors 5/10

Matt Davis	2007-2009 (outside committee member, Department of Ecology and Evolutionary Biology), Ph.D. awarded with honors 12/09
Joanna Cielocha	2009-2013 (at first outside committee member, then Department of Ecology and Evolutionary Biology), Ph.D. awarded with honors 4/13
Baruch Arroyo Pena	2014-2014, M.A. awarded 12/14
K. Taro Eldredge	2010-2013 (at first outside committee member, then Department of Ecology and Evolutionary Biology), Ph.D. candidate
Choru Shin	2010-2015 (at first outside committee member, then Department of Ecology and Evolutionary Biology), Ph.D. awarded 7/15
Crystal Maier	2011-2016 (at first outside committee member, then Department of Ecology andEvolutionary Biology), Ph.D. awarded 7/16
Mabel Alvarado	2013-present, Ph.D. candidate
Stephen Baca	2013-2015, M.A. awarded 6/15
Marianna Simoes	2014-present, Ph.D. candidate
Laura Breitkreuz	2014-present, Ph.D. candidate
Ryan Ridder	2014-present, M.A. candidate, Museum Studies
Stephen Baca	2015-present, Ph.D. candidate
Jeniffer G. Duque	2015-present, Ph.D. candidate
Matthew Girard	2015-present, Ph.D. candidate
Spencer Mattingly	2016-present, Ph.D. candidate
Cory Hills	2007-2011 (outside committee member, Department of Music), DMA with Honors awarded 3/11
Sarah Reynolds	2007-2014 (outside committee member, Department of Physics and Astronomy), Ph.D.
Drew Overholt	2011-2013 (outside committee member, Department of Physics and Astronomy), Ph.D. with honors awarded 3/13