



Jonathan Payne

Professor of Geological Sciences and, by courtesy, of Biology

Bio

BIO

I received my B.A. in Geosciences from Williams College in 1997. After graduation, I spent two years working as a high school math and science teacher. I then returned to graduate school, earning my Ph.D. in Earth and Planetary Sciences from Harvard University in the spring of 2005. Following a post-doctoral fellowship at Penn State, I joined the faculty at Stanford University in the fall of 2005. My research addresses the relationship between environmental change and biological evolution in the fossil record, with a focus on mass extinction events and long-term trends in the ecological structure of marine ecosystems. I teach courses for undergraduates in historical geology and invertebrate paleobiology and courses for graduate students in carbonate sedimentology, geobiology, and paleobiology.

ACADEMIC APPOINTMENTS

- Professor, Geological Sciences
- Professor (By courtesy), Biology
- Member, Bio-X
- Affiliate, Stanford Woods Institute for the Environment

ADMINISTRATIVE APPOINTMENTS

- Professor of Geological Sciences and (by courtesy) of Biology, Stanford University, (2016- present)
- Chair, Department of Geological Sciences, Stanford University, (2015- present)
- Associate Chair, Dept. of Geological & Environmental Sciences, Stanford University, (2014-2015)
- Associate Professor of Biology (by courtesy), Stanford University, (2012-2016)
- Associate Professor of Geological and Environmental Sciences, Stanford University, (2012-2016)
- Assistant Professor of Biology (by courtesy), Stanford University, (2010-2012)
- Affiliated Faculty Member, Woods Institute for the Environment, Stanford University, (2009- present)
- Assistant Professor of Geological and Environmental Sciences, Stanford University, (2005-2012)
- Post-doctoral Fellow, Pennsylvania State University, (2005-2005)
- Research Assistant, Harvard University, (2002-2005)
- Teaching Assistant, Harvard University, (2000-2005)
- Science and Mathematics Teacher, The American School in Switzerland (TASIS), (1997-1999)

HONORS AND AWARDS

- Fellow, Geological Society of America (2018)
- Stuart A. Northrop Distinguished Lecture, University of New Mexico (2017)

- Allan V. Cox Medal, Stanford University (2015)
- Charles Schuchert Award, Paleontological Society (2015)
- Fellow, Paleontological Society (2015)
- Stanford Fellow, Stanford University (2014-2016)
- VPUE Faculty Scholar, Stanford University (2013-2014)
- CAREER Award, NSF (2012)
- Frederick E. Terman Fellowship, Stanford University (2007-2009)
- Honorable mention for best paper, *Palaaios* (2006)
- National Defense Science and Engineering Graduate Fellowship, US Department of Defense (1999 - 2002)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Co-Chair, Scientific Program Committee, Theme 14, Goldschmidt Geochemistry Conference (2017 - 2017)
- Invited Speaker, Penn State; UT Austin; University of New Mexico; Stanford; US Geological Survey (2017 - 2017)
- Invited Speaker, Stanford University; Colgate University (2016 - 2016)
- Invited Speaker, U of Chicago; Northwestern; U of Zurich; U of Padua; U Penn; Lehigh; UC Davis (2015 - 2015)
- Member, Breadth Governance Board, Stanford University (2014 - 2015)
- Co-chair, Theme Team for Goldschmidt 2014 - 'Evolution of the Earth's Environment' (2014 - 2014)
- Convener, Topical Session on Ecosystem Geobiology and Paleobiology, Geological Society of America Annual Meeting (2014 - 2014)
- Invited Speaker, University of Michigan; Yale University (2014 - 2014)
- Outside Chair for PhD Exam (EESS x3), Stanford University (2014 - 2014)
- Panelist, NASA Exobiology Program (2014 - 2014)
- Pre-major advisor - 4 students, Stanford University (2014 - 2014)
- Research mentor: 2 high school teachers; 4 undergraduate students; 17 high school students, Stanford University (2014 - 2014)
- Member, Teaching Task Force, Stanford University, School of Earth Sciences (2013 - 2014)
- Co-organizer, Paleontological Society short course at GSA Annual Meeting - 'Ecosystem Paleobiology and Geobiology' (2013 - 2013)
- Convener, Topical Session on End-Permian Mass Extinction, Joint GSA-GSC Meeting in Chengdu, China (2013 - 2013)
- Convener, Topical Session on the History of the Biological Pump, Goldschmidt Geochemistry Conference, Florence, Italy (2013 - 2013)
- Invited Speaker, University of Zurich; Syracuse University; Bodega Marine Lab, UC Davis (2013 - 2013)
- Lecture for Camp for Talented Youth Geology Class (Middle School Students), Stanford University (2013 - 2013)
- Lecture for SES Summer Program in Paleoclimate for K-12 teachers, Stanford University (2013 - 2013)
- Member, Theme Team for Goldschmidt 2013 - 'Evolution of the Earth's Environment' (2013 - 2013)
- Outside Chair for PhD Exam (Physics), Stanford University (2013 - 2013)
- Pre-major advisor - 4 students; Major advisor (GES) - 2 students, Stanford University (2013 - 2013)
- Research mentor: 2 high school teachers, Stanford Research Experience for Teachers Program; 20 high school students; 7 undergraduate students, Stanford University (2013 - 2013)
- Member, Society for the Study of Evolution (2012 - present)
- Chair, GES Undergraduate Curriculum Committee, Stanford University (2012 - 2014)
- Undergraduate Program Director, GES, Stanford University (2012 - 2014)
- Invited Speaker, Hopkins Marine Station, Stanford University; University of California at Berkeley; Agouron Institute Meeting: The Comings and Goings of Animal Life on Earth; Scripps Institute of Oceanography; Saudi Aramco (2012 - 2012)
- Lecture for Camp for Talented Youth Geology Class (Middle School Students), Stanford University (2012 - 2012)

- Lecture for SES VPUE and SURGE Summer Undergraduate Research Students, Stanford University (2012 - 2012)
- Major advisor (GES) - 2 students, Stanford University (2012 - 2012)
- Outside chair for PhD Exam - 5 exams (Biology x2, CEE, Chemistry, Physics), Stanford University (2012 - 2012)
- Research mentor: 2 high school teachers, Stanford Research Experience for Teachers Program; 10 high school students (7 presented posters at AGU December meeting); 5 undergraduate students (4 presented posters at AGU December meeting), Stanford University (2012 - 2012)
- Associate Editor, American Journal of Science (2011 - present)
- Member, American Chemical Society (2011 - present)
- Co-chair, Geobiology Search Committee, Stanford University (2011 - 2014)
- Convener, Topical session on Carbon Isotopes and the Geological Carbon Cycle at the European Geophysical Union Annual Meeting (2011 - 2011)
- Invited Speaker, Princeton University (2011 - 2011)
- Lecture for Camp for Talented Youth Geology Class (Middle School Students), Stanford University (2011 - 2011)
- Lecture for SES VPUE Summer Undergraduate Research Students, Stanford University (2011 - 2011)
- Outside chair for PhD Exam - 1 exam (EESS), Stanford University (2011 - 2011)
- Research mentor for 1 high school science teacher, Stanford Research Experience for Teachers Program, Stanford University (2011 - 2011)
- Research mentor for 5 high school students (all 5 presented posters at AGU December meeting in San Francisco); Research mentor for 3 undergraduate students (2 funded by VPUE, 1 funded by SURGE), Stanford University (2011 - 2011)
- Invited Speaker, University of California at Berkeley; University of Frankfurt; University of California at Santa Cruz; Field Museum of Natural History, Chicago, IL (2010 - 2010)
- Lecture for Camp for Talented Youth Geology Class (Middle School Students), Stanford University (2010 - 2010)
- Lecturer for SES Summer High School Interns and Undergraduate Research Students, Stanford University (2010 - 2010)
- Research mentor for 1 high school science teacher, Stanford Research Experience for Teachers Program, Stanford University (2010 - 2010)
- Research mentor for 12 high school students (10 presented posters at AGU December meeting in San Francisco), Stanford University (2010 - 2010)
- Member, Earth Sciences Council, Stanford University (2009 - present)
- Convener, Topical session on Geochemistry of Extinction and Radiation Events at Goldschmidt Conference (2009 - 2009)
- Invited Speaker, Stanford GES & Geophysics Joint Dept Seminar; San Jose State University; California Academy of Sciences; University of California at Santa Barbara; University of New Mexico (2009 - 2009)
- Lecturer, SES VPUE Summer Undergraduate Research Students and High School Interns, Stanford University (2009 - 2009)
- Outside chair for PhD Exam - 2 exams (Biology), Stanford University (2009 - 2009)
- Research mentor for 2 high school students (both presented posters at AGU December meeting in San Francisco), Stanford University (2009 - 2009)
- Member, SES Educational Outreach Committee, Stanford University (2008 - present)
- SES Librarian Search Committee, Stanford University (2008 - 2009)
- Invited Speaker, MIT; Stanford School of Earth Sciences Faculty Forum; Chevron-Texaco, San Ramon, CA; Harvard University; NASA Ames Research Center; UC Santa Cruz (2008 - 2008)
- Lecturer and mentor, SES VPUE Summer Undergraduate Research Students (2008 - 2008)
- Associate Editor, Newsletter on Stratigraphy (2007 - present)
- Member, American Geophysical Union (2007 - present)
- Member, University Human Skeletal Remains Oversight Committee, Stanford University (2007 - present)
- GES TA Training Coordinator, Stanford University (2007 - 2014)
- GES Long Range Planning Committee, Stanford University (2007 - 2010)
- GES Dept Seminar Coordinator, Stanford University (2007 - 2009)
- Convener, Topical Session on Extinction Selectivity at GSA Annual Meeting (2007 - 2007)

- Invited Speaker, California Academy of Sciences; Guizhou Geological Survey, Guiyang, China; University of California at Berkeley; University of California at Davis; Williams College (2007 - 2007)
- Lecturer and mentor, SES Summer High School Interns (2007 - 2007)
- Outside chair for PhD Exam - 4 exams (Biological Sciences), Stanford University (2007 - 2007)
- Associate Editor, Palaeontologia Electronica (2006 - present)
- Member, Earth Systems Committee of the Whole, Stanford University (2006 - present)
- Member, GES Undergraduate Curriculum Committee, Stanford University (2006 - 2012)
- Judge, SES Annual Research Review (2006 - 2008)
- Invited Speaker, San Jose State University; Chevron-Texaco, San Ramon, CA; University of Chicago; Northwestern University (2006 - 2006)
- Lecture for SES Summer High School Interns, Stanford University (2006 - 2006)
- Lecture for SES VPUE Summer Undergraduate Research Students, Stanford University (2006 - 2006)
- Member, American Association for the Advancement of Science (2005 - present)
- Proposal Reviewer, NSF (Sedimentary Geology and Paleobiology; Geobiology and Low Temperature Geochemistry; Antarctic Earth Sciences) , NASA Astrobiology, Petroleum Research Fund of the American Chemical Society, Swiss National Science Foundation, Austrian Science Fund, National Geographic Society, Lewis and Clark Foundation, Paleontological Society (Student Grants), US Civilian Research and Development Foundation (2005 - present)
- Invited Speaker, Peninsula Geological Society, Stanford, CA; Middle East Technical University, Ankara, Turkey; Pennsylvania State University; Stanford University; University of Connecticut; University of Michigan (2005 - 2005)
- Manuscript Reviewer, Science, PNAS, Geology, Earth and Planetary Science Letters, Geobiology, Paleobiology, Environmental Science, American Journal of Science, Journal of Paleontology, Global and Planetary Change, Geochimica et Cosmochimica Acta, Geological Society of America Bulletin, Palaeoworld, New Mexico Museum of Natural History Bulletin, Palaios, Palaeogeography Palaeoclimatology Palaeoecology, Sedimentology, Lithos, Acta Palaeontologica Polonica, Journal of Zoological Systematics and Evolutionary Research, Gondwana Research, Nature Geoscience (2004 - present)
- Invited Speaker, University of Kyushu, Japan; Universidad Nacional Autonoma de Mexico, Hermosillo (2004 - 2004)
- Member, Society for Sedimentary Geology (2003 - present)
- Member, American Association of Petroleum Geologists (2003 - present)
- Invited Speaker, University of Kansas (2003 - 2003)
- Invited Speaker, Guizhou Bureau of Geology and Mineral Resources, China (2002 - 2002)
- Member, Geological Society of America (2000 - present)
- Member, Paleontological Society (2000 - present)
- Member, Sigma Xi (1997 - present)

PROGRAM AFFILIATIONS

- Center for East Asian Studies

PROFESSIONAL EDUCATION

- Ph.D., Harvard University , Earth and Planetary Sciences (2005)
- A.M., Harvard University , Earth and Planetary Sciences (2002)
- B.A., Williams College , Geosciences (1997)

LINKS

- Paleobiology Group: <https://paleobiology.stanford.edu>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Research

My research group studies the relationship between environmental change and biological evolution in the fossil record. The primary focus of my research group is on understanding the causes of mass extinctions and the processes that control subsequent recovery of biodiversity and global ecosystems. We are working to constrain the causes of the end-Permian and end-Triassic mass extinctions using high-resolution sedimentary, geochemical, and paleontological records developed from carbonate platform sediments in China, Italy, Turkey, and Japan. We are also using global data on fossil occurrence patterns and body sizes to study longer-term connections between environmental change and biological evolution, with a focus on extinction selectivity and body size evolution.

Teaching

I teach courses for undergraduates in historical geology and invertebrate paleobiology and courses for graduate students in carbonate sedimentology, geobiology, and paleobiology.

Teaching

COURSES

2018-19

- Coevolution of Earth and Life: EARTHSYS 4, GEOLSCI 4 (Aut)
- Geology of Oman Field Trip: GEOLSCI 293A (Aut)

2017-18

- Coevolution of Earth and Life: EARTHSYS 4, GS 4 (Aut)
- Evolution of Marine Ecosystems: EARTHSYS 122, GS 123, GS 223B (Aut)

2016-17

- Coevolution of Earth and Life: EARTHSYS 4, GS 4 (Aut)
- Modern Carbonates Field Trip: GS 293A (Aut)
- Topics in Geobiology: ESS 208, GS 208 (Aut)

2015-16

- How to Build and Maintain a Habitable Planet: An Introduction to Earth System History: EARTHSYS 4, GS 4 (Win)
- Paleobiology: EARTHSYS 122, GS 123, GS 223B (Spr)
- Topics in Geobiology: ESS 208, GS 208 (Aut)
- Topics in Paleobiology: GS 214 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Andres Baresch

Doctoral Dissertation Advisor (AC)

Xiaowei Li

Doctoral (Program)

Will Gearty, June Li, Sandra Schachat, Pulkit Singh

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biology (School of Humanities and Sciences) (Phd Program)

Publications

PUBLICATIONS

- **Energetic tradeoffs control the size distribution of aquatic mammals** *Proceedings of the National Academy of Sciences of the United States of America*
Gearty, W., McClain, C. R., Payne, J. L.
2018; 4194–99
- **Temperature-dependent hypoxia explains biogeography and severity of end-Permian marine mass extinction.** *Science (New York, N.Y.)*
Penn, J. L., Deutsch, C., Payne, J. L., Sperling, E. A.
2018; 362 (6419)
- **Body size downgrading of mammals over the late Quaternary.** *Science (New York, N.Y.)*
Smith, F. A., Elliott Smith, R. E., Lyons, S. K., Payne, J. L.
2018; 360 (6386): 310–13
- **A model for the decrease in amplitude of carbon isotope excursions across the Phanerozoic** *American Journal of Science*
Bachan, A., Lau, K. V., Saltzman, M. R., Thomas, E., Kump, L. R., Payne, J. L.
2017; 317: 641-676
- **Greater vulnerability to warming of marine versus terrestrial ectotherms** *NATURE*
Pinsky, M. L., Eikeset, A., McCauley, D. J., Payne, J. L., Sunday, J. M.
2019; 569 (7754): 108+
- **The accelerating influence of humans on mammalian macroecological patterns over the late Quaternary** *QUATERNARY SCIENCE REVIEWS*
Smith, F. A., Smith, R., Lyons, S., Payne, J. L., Villasenor, A.
2019; 211: 1–16
- **Convergent body size evolution of Crocodyliformes upon entering the aquatic realm**
Gearty, W., Payne, J. L.
OXFORD UNIV PRESS INC.2018: E321
- **Estimating Global Extinction Threat Levels in Butterflies**
Heim, N. A., Payne, J. L.
OXFORD UNIV PRESS INC.2018: E91
- **Phanerozoic pO₂ and the early evolution of terrestrial animals** *Proceedings of the Royal Society B: Biological Sciences*
Schachat, S. R., Labandiera, C. C., Saltzman, M. R., Cramer, B. D., Payne, J. L., Boyce, C. K.
2018; 285
- **Phanerozoic pO₂ and the early evolution of terrestrial animals.** *Proceedings. Biological sciences*
Schachat, S. R., Labandeira, C. C., Saltzman, M. R., Cramer, B. D., Payne, J. L., Boyce, C. K.
2018; 285 (1871)
- **Energetic tradeoffs control the size distribution of aquatic mammals.** *Proceedings of the National Academy of Sciences of the United States of America*
Gearty, W., McClain, C. R., Payne, J. L.
2018; 115 (16): 4194–99
- **Is biodiversity energy-limited or unbounded? A test in fossil and modern bivalves** *Paleobiology*
McClain, C. R., Heim, N. A., Knope, M. L., Payne, J. L.
2018
- **Global perturbation of the marine calcium cycle during the Permian-Triassic transition** *Geological Society of America Bulletin*
Silva-Tamayo, J., Payne, J. L., Wignall, P. B., Newton, R. J., Eisenhauer, A., DePaolo, D. J., Brown, S., Lau, K. V., Maher, K., Lehrmann, D. J., Altiner, D., Yu, M., Richoz, et al
2018
- **The Late Permian to Late Triassic Great Bank of Guizhou: An isolated carbonate platform in the Nanpanjiang Basin of Guizhou Province, China** *AAPG BULLETIN*
Kelley, B. M., Lehrmann, D. J., Yu, M., Minzoni, M., Enos, P., Li, X., Lau, K. V., Payne, J. L.

2017; 101 (4): 553-562

- **Uranium isotope evidence for temporary ocean oxygenation in the aftermath of the Sturtian Snowball Earth** *EARTH AND PLANETARY SCIENCE LETTERS*
Lau, K. V., Macdonald, F. A., Maher, K., Payne, J. L.
2017; 458: 282-292
- **Hierarchical complexity and the size limits of life** *Proceedings of the Royal Society B: Biological Sciences*
Heim, N. A., Payne, J. L., Finnegan, S., Knope, M. L., Kowalewski, M., Lyons, S. K., McShea, D. W., Novack-Gottshall, P. M., Smith, F. A., Wang, S. C.
2017; 284
- **Hierarchical complexity and the size limits of life.** *Proceedings. Biological sciences*
Heim, N. A., Payne, J. L., Finnegan, S., Knope, M. L., Kowalewski, M., Lyons, S. K., McShea, D. W., Novack-Gottshall, P. M., Smith, F. A., Wang, S. C.
2017; 284 (1857)
- **The influence of diagenesis, mineralogy, and seawater changes on calcium isotope variations in Lower-Middle Triassic carbonate rocks** *Chemical Geology*
Lau, K. V., Maher, K., Brown, S., Jost, A. B., Altiner, D., DePaolo, D. J., Eisenhauer, A., Kelley, B. M., Lehrmann, D. J., Paytan, A., Silva-Tamayo, J., Yu, M., Payne, et al
2017; 471: 13-37
- **Origin and early evolution of Involutinida in the aftermath of the end-Permian mass extinction: Praetriadodiscus n. gen., and two new species** *Revue de Micropaléontologie*
Altiner, D., Payne, J. L.
2017; 60: 573-584
- **Uranium isotope evidence for an expansion of marine anoxia during the end-Triassic extinction** *Geochemistry, Geophysics, Geosystems*
Jost, A. B., Bachan, A., Van De Schootbrugge, B., Lau, K. V., Weaver, K. L., Maher Kate, Payne, J. L.
2017; 18
- **Ecophenotypic responses of benthic foraminifera to oxygen availability along an oxygen gradient in the California Borderland** *Marine Ecology*
Keating-Bitonti, C. R., Payne, J. L.
2017; 38
- **Additive effects of acidification and mineralogy on calcium isotopes in Triassic/Jurassic boundary limestones** *GEOCHEMISTRY GEOPHYSICS GEOSYSTEMS*
Jost, A. B., Bachan, A., van de Schootbrugge, B., Brown, S. T., DePaolo, D. J., Payne, J. L.
2017; 18 (1): 113-124
- **Physicochemical controls on biogeographic variation of benthic foraminiferal test size and shape** *PALEOBIOLOGY*
Keating-Bitonti, C. R., Payne, J. L.
2016; 42 (4): 595-611
- **Extinction intensity, selectivity and their combined macroevolutionary influence in the fossil record.** *Biology letters*
Payne, J. L., Bush, A. M., Chang, E. T., Heim, N. A., Knope, M. L., Pruss, S. B.
2016; 12 (10)
- **Ecological selectivity of the emerging mass extinction in the oceans.** *Science*
Payne, J. L., Bush, A. M., Heim, N. A., Knope, M. L., McCauley, D. J.
2016; 353 (6305): 1284-1286
- **The influence of the biological pump on ocean chemistry: implications for long-term trends in marine redox chemistry, the global carbon cycle, and marine animal ecosystems** *GEOBIOLOGY*
Meyer, K. M., Ridgwell, A., Payne, J. L.
2016; 14 (3): 207-219
- **Marine anoxia and delayed Earth system recovery after the end-Permian extinction.** *Proceedings of the National Academy of Sciences of the United States of America*
Lau, K. V., Maher, K., Altiner, D., Kelley, B. M., Kump, L. R., Lehrmann, D. J., Silva-Tamayo, J. C., Weaver, K. L., Yu, M., Payne, J. L.
2016; 113 (9): 2360-2365
- **Modelling the impact of pulsed CAMP volcanism on pCO₂ and delta C-13 across the Triassic-Jurassic transition** *GEOLOGICAL MAGAZINE*

- Bachan, A., Payne, J. L.
2016; 153 (2): 252-270
- **Comparative size evolution of marine clades from the Late Permian through Middle Triassic** *PALEOBIOLOGY*
Schaal, E. K., Clapham, M. E., Rego, B. L., Wang, S. C., Payne, J. L.
2016; 42 (1): 127-142
 - **Body Size Evolution Across the Geozoic** *ANNUAL REVIEW OF EARTH AND PLANETARY SCIENCES, VOL 44*
Smith, F. A., Payne, J. L., Heim, N. A., Balk, M. A., Finnegan, S., Kowalewski, M., Lyons, S. K., McClain, C. R., McShea, D. W., Novack-Gottshall, P. M., Anich, P. S., Wang, S. C.
2016; 44: 523-553
 - **Patterns of basin fill in Triassic turbidites of the Nanpanjiang basin: implications for regional tectonics and impacts on carbonate-platform evolution** *BASIN RESEARCH*
Lehrmann, D. J., Chaikin, D. H., Enos, P., Minzoni, M., Payne, J. L., Yu, M., Goers, A., Wood, T., Richter, P., Kelley, B. M., Li, X., Qin, Y., Liu, et al
2015; 27 (5): 587-612
 - **An integrated biostratigraphy (conodonts and foraminifers) and chronostratigraphy (paleomagnetic reversals, magnetic susceptibility, elemental chemistry, carbon isotopes and geochronology) for the Permian-Upper Triassic strata of Guandao section, Nanpanjiang Basin, south China** *JOURNAL OF ASIAN EARTH SCIENCES*
Lehrmann, D. J., Stepchinski, L., Altiner, D., Orchard, M. J., Montgomery, P., Enos, P., Ellwood, B. B., Bowring, S. A., Ramezani, J., Wang, H., Wei, J., Yu, M., Griffiths, et al
2015; 108: 117-135
 - **TAPHONOMIC BIAS OF SELECTIVE SILICIFICATION REVEALED BY PAIRED PETROGRAPHIC AND INSOLUBLE RESIDUE ANALYSIS** *PALAIOS*
Pruss, S. B., Payne, J. L., Westacott, S.
2015; 30 (8): 620-626
 - **ENVIRONMENTAL CONTROLS ON THE GENESIS OF MARINE MICROBIALITES AND DISSOLUTION SURFACE ASSOCIATED WITH THE END-PERMIAN MASS EXTINCTION: NEW SECTIONS AND OBSERVATIONS FROM THE NANPANJIANG BASIN, SOUTH CHINA** *PALAIOS*
Lehrmann, D. J., Bentz, J. M., Wood, T., Goers, A., Dhillon, R., Akin, S., Li, X., Payne, J. L., Kelley, B. M., Meyer, K. M., Schaal, E. K., Suarez, M. B., Yu, et al
2015; 30 (7): 529-552
 - **Phanerozoic trends in brachiopod body size from synoptic data** *PALEOBIOLOGY*
Zhang, Z., Augustin, M., Payne, J. L.
2015; 41 (3): 491-501
 - **DROWNING OF THE TRIASSIC YANGTZE PLATFORM, SOUTH CHINA, BY TECTONIC SUBSIDENCE INTO TOXIC DEEP WATERS OF AN ANOXIC BASIN** *JOURNAL OF SEDIMENTARY RESEARCH*
Minzoni, M., Lehrmann, D. J., Dezoeten, E., Enos, P., Montgomery, P., Berry, A., Qin, Y., Yu Meiyi, M. Y., Ellwood, B. B., Payne, J. L.
2015; 85 (5): 419-444
 - **Normal giants? Temporal and latitudinal shifts of Palaeozoic marine invertebrate gigantism and global change** *LETHAIA*
Klug, C., De Baets, K., Kroger, B., Bell, M. A., Korn, D., Payne, J. L.
2015; 48 (2): 267-288
 - **Limited role of functional differentiation in early diversification of animals** *NATURE COMMUNICATIONS*
Knobe, M. L., Heim, N. A., Frishkoff, L. O., Payne, J. L.
2015; 6
 - **Animal evolution. Cope's rule in the evolution of marine animals.** *SCIENCE*
Heim, N. A., Knobe, M. L., Schaal, E. K., Wang, S. C., Payne, J. L.
2015; 347 (6224): 867-870
 - **Cope's rule in the evolution of marine animals** *SCIENCE*
Heim, N. A., Knobe, M. L., Schaal, E. K., Wang, S. C., Payne, J. L.
2015; 347 (6224): 867-870
 - **Ocean anoxia during the Permian-Triassic transition and links to volcanism** *Volcanism and global environmental change*
Schaal, E. K., Meyer, K. M., Lau, K. V., Silva-Tamayo, J., Payne, J. L.

Cambridge University Press.2015: 275–290

- **Limited role of functional differentiation in early diversification of animals.** *Nature communications*
Knope, M. L., Heim, N. A., Frishkoff, L. O., Payne, J. L.
2015; 6: 6455-?
- **The end-Triassic negative delta C-13 excursion: A lithologic test** *PALAEOGEOGRAPHY PALAEOCLIMATOLOGY PALAEOECOLOGY*
Bachan, A., de Schootbrugge, B. v., Payne, J. L.
2014; 412: 177-186
- **Phylogenetic signal in extinction selectivity in Devonian terebratulide brachiopods** *PALEOBIOLOGY*
Harnik, P. G., Fitzgerald, P. C., Payne, J. L., Carlson, S. J.
2014; 40 (4): 675-692
- **Constraining the cause of the end-Guadalupian extinction with coupled records of carbon and calcium isotopes** *EARTH AND PLANETARY SCIENCE LETTERS*
Jost, A. B., Mundil, R., He, B., Brown, S. T., Altiner, D., Sun, Y., DePaolo, D. J., Payne, J. L.
2014; 396: 201-212
- **Metabolic dominance of bivalves predates brachiopod diversity decline by more than 150 million years.** *Proceedings. Biological sciences / The Royal Society*
Payne, J. L., Heim, N. A., Knope, M. L., McClain, C. R.
2014; 281 (1783): 20133122-?
- **Triassic tank: platform margin and slope architecture in space and time, Nanpanjiang Basin, south China. In Deposits, Architecture, and Controls of Carbonate Margin, Slope, and Basinal Settings, eds. Verwer K, Playton TE, and Harris PM.** *SEPM Special Publication*
Minzoni, M., Lehrmann, D. J., Payne, J. L., Enos, P., Wei, J., Kelley, B. M., Schaal, E. K., Meyer, K. M., Montgomery, P., Goers, A., Wood, T.
2014; 105: 84-113
- **Basin filling patterns of turbidites in the Nanpanjiang Basin of south China: implications for tectonics and impacts on carbonate platform evolution** *BASIN RESEARCH*
Lehrmann, D. J., Chaikin, D. H., Enos, P., Minzoni, M., Payne, J. L., Yu, M., Richter, P., Goers, A., Wood, T., Kelley, B. M., Li, X., Qin, Y., Liu, et al
2014
- **CONSTRAINTS ON THE ADULT-OFFSPRING SIZE RELATIONSHIP IN PROTISTS** *EVOLUTION*
Caval-Holme, F., Payne, J., Skotheim, J. M.
2013; 67 (12): 3537-3544
- **High-resolution delta C-13(carb) chemostratigraphy from latest Guadalupian through earliest Triassic in South China and Iran** *EARTH AND PLANETARY SCIENCE LETTERS*
Shen, S., Cao, C., Zhang, H., Bowring, S. A., Henderson, C. M., Payne, J. L., Davydov, V. I., Chen, B., Yuan, D., Zhang, Y., Wang, W., Zheng, Q.
2013; 375: 156-165
- **MICROBES, MUD AND METHANE: CAUSE AND CONSEQUENCE OF RECURRENT EARLY JURASSIC ANOXIA FOLLOWING THE END-TRIASSIC MASS EXTINCTION** *PALAEONTOLOGY*
van de Schootbrugge, B., Bachan, A., Suan, G., Richo, S., Payne, J. L.
2013; 56 (4): 685-709
- **A SHIFT IN THE LONG-TERM MODE OF FORAMINIFERAN SIZE EVOLUTION CAUSED BY THE END-PERMIAN MASS EXTINCTION** *EVOLUTION*
Payne, J. L., Jost, A. B., Wang, S. C., Skotheim, J. M.
2013; 67 (3): 816-827
- **Constraints on Early Triassic carbon cycle dynamics from paired organic and inorganic carbon isotope records** *EARTH AND PLANETARY SCIENCE LETTERS*
Meyer, K. M., Yu, M., LEHRMANN, D., van de Schootbrugge, B., Payne, J. L.
2013; 361: 429-435
- **Long-term differences in extinction risk among the seven forms of rarity** *PROCEEDINGS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*
Harnik, P. G., Simpson, C., Payne, J. L.
2012; 279 (1749): 4969-4976

- **A LACK OF ATTRIBUTION: CLOSING THE CITATION GAP THROUGH A REFORM OF CITATION AND INDEXING PRACTICES** *TAXON*
Payne, J. L., Smith, F. A., Kowalewski, M., Krause, R. A., Boyer, A. G., McClain, C. R., Finnegan, S., Novack-Gottshall, P. M., Sheble, L.
2012; 61 (6): 1349-1351
- **Within- and among-genus components of size evolution during mass extinction, recovery, and background intervals: a case study of Late Permian through Late Triassic foraminifera** *PALEOBIOLOGY*
Rego, B. L., Wang, S. C., Altiner, D., Payne, J. L.
2012; 38 (4): 627-643
- **Carbon cycle dynamics following the end-Triassic mass extinction: Constraints from paired delta C-13(carb) and delta C-13(org) records** *GEOCHEMISTRY GEOPHYSICS GEOSYSTEMS*
Bachan, A., van de Schootbrugge, B., Fiebig, J., McRoberts, C. A., Ciarapica, G., Payne, J. L.
2012; 13
- **LATE PALEOZOIC FUSULINOIDEAN GIGANTISM DRIVEN BY ATMOSPHERIC HYPEROXIA** *EVOLUTION*
Payne, J. L., Groves, J. R., Jost, A. B., Thienan Nguyen, T., Moffitt, S. E., Hill, T. M., Skotheim, J. M.
2012; 66 (9): 2929-2939
- **Evidence for end-Permian ocean acidification from calcium isotopes in biogenic apatite** *GEOLOGY*
Hinojosa, J. L., Brown, S. T., Chen, J., DePaolo, D. J., Paytan, A., Shen, S., Payne, J. L.
2012; 40 (8): 743-746
- **Lower Triassic oolites of the Nanpanjiang Basin, south China: Facies architecture, giant ooids, and diagenesis-Implications for hydrocarbon reservoirs** *AAPG BULLETIN*
Lehrmann, D. J., Minzoni, M., Li, X., Yu, M., Payne, J. L., Kelley, B. M., Schaal, E. K., Enos, P.
2012; 96 (8): 1389-1414
- **Size-Frequency Distributions along a Latitudinal Gradient in Middle Permian Fusulinoideans** *PLOS ONE*
Zhang, Y., Payne, J. L.
2012; 7 (6)
- **Factors controlling carbonate platform asymmetry: Preliminary results from the Great Bank of Guizhou, an isolated Permian-Triassic Platform in the Nanpanjiang Basin, south China** *PALAEOGEOGRAPHY PALAEOCLIMATOLOGY PALAEOECOLOGY*
Li, X., Yu, M., Lehrmann, D. J., Payne, J. L., Kelley, B. M., Minzoni, M.
2012; 315: 158-171
- **End-Permian Mass Extinction in the Oceans: An Ancient Analog for the Twenty-First Century?** *ANNUAL REVIEW OF EARTH AND PLANETARY SCIENCES, VOL 40*
Payne, J. L., Clapham, M. E.
2012; 40: 89-111
- **Acidification, anoxia, and extinction: A multiple logistic regression analysis of extinction selectivity during the Middle and Late Permian** *GEOLOGY*
Clapham, M. E., Payne, J. L.
2011; 39 (11): 1059-1062
- **Local and global abundance associated with extinction risk in late Paleozoic and early Mesozoic gastropods** *PALEOBIOLOGY*
Payne, J. L., Truebe, S., Nuetzel, A., Chang, E. T.
2011; 37 (4): 616-632
- **Early and Middle Triassic trends in diversity, evenness, and size of foraminifers on a carbonate platform in south China: implications for tempo and mode of biotic recovery from the end-Permian mass extinction** *PALEOBIOLOGY*
Payne, J. L., Summers, M., Rego, B. L., Altiner, D., Wei, J., Yu, M., Lehrmann, D. J.
2011; 37 (3): 409-425
- **THE GEOZOIC SUPEREON** *PALAIOS*
Kowalewski, M., Payne, J. L., Smith, F. A., Wang, S. C., McShea, D. W., Xiao, S., Novack-Gottshall, P. M., McClain, C. R., Krause, R. A., Boyer, A. G., Finnegan, S., Lyons, S. K., Stempien, et al
2011; 26 (5-6): 251-255
- **Escargots through time: an energetic comparison of marine gastropod assemblages before and after the Mesozoic Marine Revolution** *PALEOBIOLOGY*
Finnegan, S., McClain, C. M., Kosnik, M. A., Payne, J. L.

2011; 37 (2): 252-269

- **delta C-13 evidence that high primary productivity delayed recovery from end-Permian mass extinction** *EARTH AND PLANETARY SCIENCE LETTERS*
Meyer, K. M., Yu, M., Jost, A. B., Kelley, B. M., Payne, J. L.
2011; 302 (3-4): 378-384
- **The evolutionary consequences of oxygenic photosynthesis: a body size perspective** *PHOTOSYNTHESIS RESEARCH*
Payne, J. L., McClain, C. R., Boyer, A. G., Brown, J. H., Finnegan, S., Kowalewski, M., Krause, R. A., Lyons, S. K., McShea, D. W., Novack-Gottshall, P. M., Smith, F. A., Spaeth, P., Stempien, et al
2011; 107 (1): 37-57
- **Calcium isotope constraints on the end-Permian mass extinction** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Payne, J. L., Turchyn, A. V., Paytan, A., DePaolo, D. J., Lehrmann, D. J., Yu, M., Wei, J.
2010; 107 (19): 8543-8548
- **Erosional truncation of uppermost Permian shallow-marine carbonates and implications for Permian-Triassic boundary events: Reply** *GEOLOGICAL SOCIETY OF AMERICA BULLETIN*
Payne, J. L., Lehrmann, D. J., Follett, D., Seibel, M., Kump, L. R., Riccardi, A., Altiner, D., Sano, H., Wei, J.
2009; 121 (5-6): 957-959
- **Two-phase increase in the maximum size of life over 3.5 billion years reflects biological innovation and environmental opportunity** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Payne, J. L., Boyer, A. G., Brown, J. H., Finnegan, S., Kowalewski, M., Krause, R. A., Lyons, S. K., McClain, C. R., McShea, D. W., Novack-Gottshall, P. M., Smith, F. A., Stempien, J. A., Wang, et al
2009; 106 (1): 24-27
- **EARLY TRIASSIC MICROBIAL SPHEROIDS IN THE VIRGIN LIMESTONE MEMBER OF THE MOENKOPI FORMATION, NEVADA, USA** *PALAIOS*
Pruss, S. B., Payne, J. L.
2009; 24 (1-2): 131-136
- **The Red Queen revisited: reevaluating the age selectivity of Phanerozoic marine genus extinctions** *PALEOBIOLOGY*
Finnegan, S., Payne, J. L., Wang, S. C.
2008; 34 (3): 318-341
- **Carbon cycle perturbation and stabilization in the wake of the Triassic-Jurassic boundary mass-extinction event** *GEOCHEMISTRY GEOPHYSICS GEOSYSTEMS*
van de Schootbrugge, B., Payne, J. L., Tomasovych, A., Pross, J., Fiebig, J., Benbrahim, M., Foellmi, K. B., Quan, T. M.
2008; 9
- **Record of the end-Permian extinction and Triassic biotic recovery in the Chongzuo-Pingguo platform, southern Nanpanjiang basin, Guangxi, south China** *Symposium on Early Triassic Chronostratigraphy and Biotic Recovery*
Lehrmann, D. J., Payne, J. L., Pei, D., Enos, P., Druke, D., Steffen, K., Zhang, J., Wei, J., Orchard, M. J., Ellwood, B.
ELSEVIER SCIENCE BV.2007: 200-217
- **Erosional truncation of uppermost Permian shallow-marine carbonates and implications for Permian-Triassic boundary events** *GEOLOGICAL SOCIETY OF AMERICA BULLETIN*
Payne, J. L., Lehrmann, D. J., Follett, D., Seibel, M., Kump, L. R., Riccardi, A., Altiner, D., Sano, H., Wei, J.
2007; 119 (7-8): 771-784
- **The effect of geographic range on extinction risk during background and mass extinction** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Payne, J. L., Finnegan, S.
2007; 104 (25): 10506-10511
- **End-Permian mass extinction of lagenide foraminifers in the Southern Alps (Northern Italy)** *JOURNAL OF PALEONTOLOGY*
Groves, J. R., Rettori, R., Payne, J. L., Boyce, M. D., Altiner, D.
2007; 81 (3): 415-434
- **Paleophysiology and end-Permian mass extinction** *EARTH AND PLANETARY SCIENCE LETTERS*
Knoll, A. H., Barnbach, R. K., Payne, J. L., Pruss, S., Fischer, W. W.

2007; 256 (3-4): 295-313

- **Evidence for recurrent Early Triassic massive volcanism from quantitative interpretation of carbon isotope fluctuations** *EARTH AND PLANETARY SCIENCE LETTERS*
Payne, J. L., Kump, L. R.
2007; 256 (1-2): 264-277
- **Placunopsis bioherms: The first metazoan buildups following the end-Permian mass extinction** *PALAIOS*
Pruss, S. B., Payne, J. L., Bottjer, D. J.
2007; 22 (1): 17-23
- **Life in Triassic Oceans: Links between planktonic and benthic recovery and radiation** *Evolution of Primary Producers in the Sea*
Payne, J. L., van de Schootbrugge, B.
edited by Falkowski, P., Knoll, A. H.
Academic Press, Amsterdam.2007: 165–189
- **Timing of recovery from the end-Permian extinction: Geochronologic and biostratigraphic constraints from south China** *GEOLOGY*
Lehrmann, D. J., Ramezani, J., Bowring, S. A., Martin, M. W., Montgomery, P., Enos, P., Payne, J. L., Orchard, M. J., Wang HongMei, H. M., Wei Jiayong, J. Y.
2006; 34 (12): 1053-1056
- **Environmental and biological controls on the initiation and growth of a Middle Triassic (Anisian) reef complex on the Great Bank of Guizhou, Guizhou Province, China** *PALAIOS*
Payne, J. L., Lehrmann, D. J., Christensen, S., Wei, J., Knoll, A. H.
2006; 21 (4): 325-343
- **Controls on marine animal biomass through geological time** *GEOBIOLOGY*
Payne, J. L., Finnegan, S.
2006; 4 (1): 1-10
- **The pattern and timing of biotic recovery from the end-Permian extinction on the Great Bank of Guizhou, Guizhou province, China** *PALAIOS*
Payne, J. L., Lehrmann, D. J., Wei, J. Y., Knoll, A. H.
2006; 21 (1): 63-85
- **Evolutionary dynamics of gastropod size across the end-Permian extinction and through the Triassic recovery interval** *PALEOBIOLOGY*
Payne, J. L.
2005; 31 (2): 269-290
- **Field Excursion 2: Permian-Triassic boundary and a Lower-Middle Triassic boundary sequence on the Great Bank of Guizhou, Nanpanjiang basin, southern Guizhou Province** *Albertiana*
Lehrmann, D. J., Payne, J. L., Enos, P., Montgomery, P., Wei, J., Yu, Y., Orchard, M. J.
2005; 33: 167-184
- **Permian and Triassic depositional history of the Yangtze platform and Great Bank of Guizhou in the Nanpanjiang basin of Guizhou and Guangxi, South China** *Albertiana*
Lehrmann, D. J., P., Enos, Payne, J. L., Montgomery, P., Wei, J., Yu, Y., Orchard, M. J.
2005; 33: 147-166
- **Large perturbations of the carbon cycle during recovery from the end-Permian extinction** *SCIENCE*
Payne, J. L., Lehrmann, D. J., Wei, J. Y., Orchard, M. J., Schrag, D. P., Knoll, A. H.
2004; 305 (5683): 506-509
- **Lower Cretaceous Alisitos Formation at Punta San Isidro: Coastal sedimentation and volcanism** *CIENCIAS MARINAS*
Payne, J. L., Johnson, M. E., Ledesma-Vazquez, J.
2004; 30 (2): 365-380
- **Permian-Triassic boundary sections from shallow-marine carbonate platforms of the Nanpanjiang Basin, south China: Implications for oceanic conditions associated with the end-Permian extinction and its aftermath** *PALAIOS*
Lehrmann, D. J., Payne, J. L., Felix, S. V., Dillett, P. M., Wang, H., Yu, Y. Y., Wei, J. Y.
2003; 18 (2): 138-152
- **Applicability and resolving power of statistical tests for simultaneous extinction events in the fossil record** *PALEOBIOLOGY*

Payne, J. L.
2003; 29 (1): 37-51