



# Priscum

NEWSLETTER OF THE  
PALEONTOLOGICAL  
SOCIETY

## SPECIAL POINTS OF INTEREST:

- New Paleobiology Database Navigator
- Book reviews
- Interview with PS Awardee
- Call for PS nominations
- Social Media Round-up
- PalSIRP/Sepkoski grant announcement
- PS Medal, Schuchert, and Strimple Awardees
- Thanks to those who have served the Society

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## The Paleobiology Database Releases PBDB Navigator

By Shanan E. Peters (University of Wisconsin)

For nearly two decades, an international team of more than 150 paleontologists, spearheaded technically and intellectually by John Alroy, have devoted considerable time to entering field- and literature-derived fossil occurrence and taxonomic data into the Paleobiology Database (<http://paleobiodb.org>). The database now contains nearly 300,000 taxonomic names, almost a half million opinions about the classification of those names, and more than 1.1 million globally distributed fossil occurrences from across the entire tree of life and throughout most of geologic time. The aggregate data have been put to great use by an even larger international community, producing 194 official peer reviewed publications; many more publications make use of the database but are not tallied in the official numbered list.

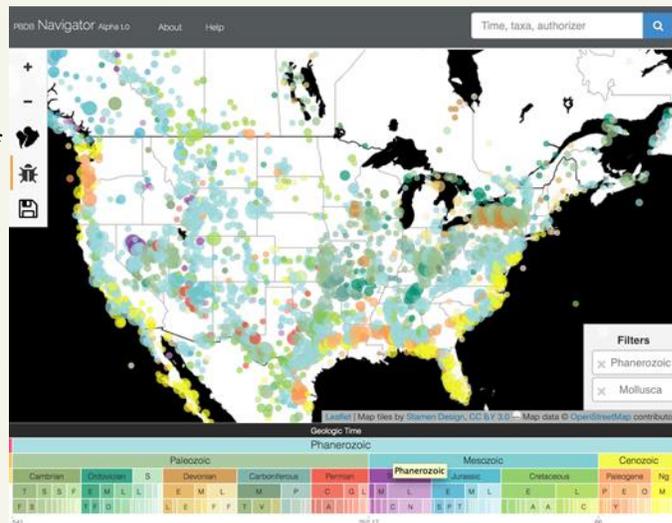
By all accounts, the Paleobiology Database has been a tremendous success in doing what databases are supposed to do, which is to enable new science. However, the database has matured to the point where it can and should be

doing more to promote the field of paleontology and to expose the fossil record lucidly to the public, other geoscientists, and to our own paleontological community.

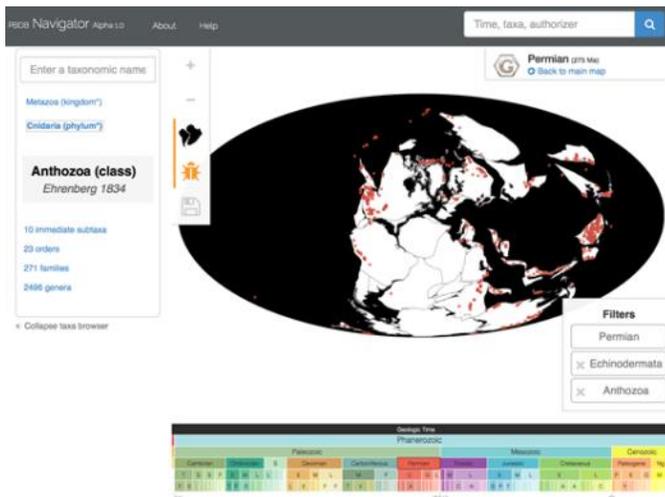
Thanks to an NSF Geoinformatics grant initially awarded to John Alroy in 2010 and immediately transferred to Shanan Peters, our University of Wisconsin-Madison based PBDB

IT team, composed of Peters, Michael McClellan (Chief Informaticist), John Czaplewski (cartographer and User Interface developer), and Puneet Kishor are building a technical foundation that will give the PBDB greater exposure

and accessibility. The most important new change is that we are actively rolling out an Application Programming Interface for the database, one that will allow third party data-driven application development that we hope will help grow a more diverse user ecosystem around the PBDB. To get things started, the UW-Madison team have developed and released PBDB Navigator, which is designed to facilitate the intuitive exploration of the fossil



## NEW PALEOBIOLOGY DATABASE NAVIGATOR



record by geologic time, geography, and taxonomy. PBDB Navigator uses the same open API that is available to you, which means that you and your teams can begin developing novel applications that draw on the rich public PBDB data, which are now released under a Creative Commons CC-BY 2.0 International license (<http://creativecommons.org/licenses/by/4.0/>). The iOS application Mancos similarly makes use of the PBDB API, as well as other open APIs (e.g., <http://earth-base.org/geomaps>) published by the UW-Madison IT team.

The PBDB has also undergone a recent rebirth in community governance. The Executive Committee, currently led by Chair Mark Uhen and Secretary Jocelyn Sessa, and the Advisory Board have started a new push in several different areas of research and outreach. One of the main goals right now is to learn what you would like the PBDB to do for you and how the PBDB could benefit from your own paleontological expertise. Contacting the Executive Committee (<http://paleobiodb.org/#/contact>) is a great way to start to get involved and to offer suggestions for the future improvement of this valuable resource, which should be one prominent expression of the paleontological community and a strength of our discipline.

### Social Media Roundup

**Follow us on Twitter (@Paleo\_Society, [https://twitter.com/Paleo\\_Society](https://twitter.com/Paleo_Society)).** As of February 6th, 2014, we have 199 followers.

**Check out the Paleontological Society on Facebook ([www.facebook.com/PaleoSoc](http://www.facebook.com/PaleoSoc)).** As of Jan 8th, 2014, we have

1,401 "likes" on our Facebook page. Our 3 most popular Facebook posts of the last 6 months are:

#### **#1 (2,484 people reached) Call for workshop proposals!**

STEPPE is a new office funded by the Geological Society of America, the Society for Sedimentary Geology (SEPM), the Paleontological Society, and the National Science Foundation to facilitate communication and collaboration for researchers and educators studying the deep-time sedimentary crust and the history of life. The interim website can be viewed at <http://steppe.org>

We are seeking proposals for workshops on deep-time sedimentary crust and fossil record research.

Please submit your proposals by November 15, 2013. Proposal should consist of a one-paragraph summary; a two-page description of the workshop, including the need for and timeliness of it; and proposed location and dates, budget, and plans for acquiring supplemental funding, if needed. Proposal should be in PDF format and emailed to [mail@steppe.org](mailto:mail@steppe.org). Decisions on the proposals will be made by December 15, 2013. The workshop should be scheduled for no later than April 30, 2014.

Grants will be \$8-10K to help set-up, organize, and fund participation—particularly by students and post-docs—in the workshop.

For more information, please contact Dr. Judy Parrish, STEPPE Executive Director, at [mail@steppe.org](mailto:mail@steppe.org)

**#2 (979 people reached) Congratulations to all of the PS award winners at last night's award dinner at GSA: Check out the 2013 PS awardees here! <http://t.co/jK3vFBcbbe>**

**#3 (778 people reached) <http://phenomena.nationalgeographic.com/2013/11/14/historical-fossils-may-be-lost-at-auction/>**

Send your comments about the planned auction directly to San Diego Nat Hist Museum here: <http://www.sdnhm.org/about-us/our-museum/contact-us/>



## INTERVIEW WITH PS MEDALIST ESTELLA LEOPOLD

*Estella Leopold is the recipient of the 2013 Paleontological Society medal, the most prestigious honor bestowed by the Society. It is awarded to a person whose eminence is based on advancement of knowledge in paleontology.*

*The Priscum editor spoke with Dr. Leopold in January, 2014.*



**Q: I noticed in your biography that you lived longer in Seattle than anywhere else. What's the best part of living there?**

A: Well, I was very fond of Colorado, and I bought some land there and had a cabin and stuff. It was good because it gave me easy access to New Mexico, where my mother's family lived, and I have many cousins there. But I like very much being in the Northwest. It's politically liberal, it's got a nice summer climate, and, particularly, its diversity: access for field trips to an active volcano, the rainforest, the desert, a rich conifer forest. It's very diverse, and all within a day's drive. That was a real plus, as a teacher and as a botanist.

**Q: I thought you were going to say the coffee! As a botanist, why do you think most of our drinks are plant-based? I mean, it's not like I woke up to a cup of hot beef broth this morning. Is there a reason for that?**

A: An interesting thought. Well, I guess plants are easier to access. I don't know.

**Q: Maybe this isn't a cutting edge area of research.**

A: Well, think about it: tea, coffee, chocolate.

**Q: You helped pressure the U.S. Congress into creating the Florissant Fossil Beds National Monument, in 1969. What sort of advice would you give today's conservationists about working with the government?**

A: Well, there are so many aspects. I think the thing that helped us the most is that we corresponded regularly with a Senator and some Representatives. We really got to know them, and their staff got to know us, two of us ladies. And then we invited them to come in and see the problem. And one senator came to visit us in the field via a helicopter. We were just thrilled. One should use every media you can think of, like the press. The press, I think, was our most valuable weapon—wonderful if you can get their help. You

can take the press to the field, and show them what's what. And in addition one can of course use radio or TV to get attention.

**Q: Do you find that the mood has changed with regard to how citizens can effect change about conservation issues, in comparison to when you were first starting out?**

A: I'm sure it's more complex now, for so many reasons. I think the worst problem is that the issues are so much larger now and there are so many of them now. It used to be we only had a few things come to us at a time, and now it's just an incredible list of conservation problems. And so it's hard to get anybody's attention. And that's why these outreach tools, I think, are especially important.

**Q: In your professional career, is there one particular thing of which you're most proud?**

A: Yes, I'm most proud of my study of the Miocene Eniwetok atoll, published as a professional paper back in 1980 or so. These were cores that our government drilled some time before they set off the bomb on Bikini. So we worked up the fossil pollen in my lab, and we were able to identify, in the sediments, a whole bevy of pollen and algae that pointed squarely to a fossil mangrove swamp deposit, now about 2000 feet below the present sea level. Clearly the atoll had sunk considerably since deposition. This meant that my pollen work corroborated Darwin's idea that a Hawaiian-type volcano sank below the sea, and that a ring of coral in the shallow water grew upward to make an atoll. Interestingly, the mangrove composition and diversity was similar to today's mangrove association in Micronesia! That was a fun study.

Leopold, E.B. 1969. Miocene pollen and spore flora of Eniwetok Atoll, Marshall Islands. U.S. Geological Survey Professional Paper 260-II. <http://pubs.usgs.gov/pp/0260ii/report.pdf>

**Q: Even that far back in time?**

A: Yes, floras of the Miocene were pretty well formed and similar to today's forest associations in many areas, except of course their distributions were very different than now. There were no deserts, yet, and grasslands were just developing at that time. We lacked some of the weeds and the herbs that evolved very, very late, after the Miocene. But the woody genera are very similar to today's associations.

**Q: What do you think the most interesting ques-**

## INTERVIEW WITH PS MEDALIST ESTELLA LEOPOLD

### tions in paleontology are today?

A: Well, I'm very biased, because of my interests. It's hard to keep track of where research is going, you know, with all these new isotopic studies. But, my interests are highly focused on biogeography and landscapes: the patterns that told us what the topography was, where the deserts were, where the rain shadows were, where the mountains were. And we can tell from the mix of the genera, typically, about the age. What was the land really like? That's my interest, so maybe that's where I'm focused and the fact that I find this the most interesting. But, gee, there's a lot going on now. Certainly, I'm interested in much of it.

### Q: Do you think that there are directions that are important which the discipline is not concentrating on, or not concentrating on enough?

A: There IS one thing I think paleontologists can do better or more of, than we have, and that is talking about the rate of climate change. We all know very well the rates of climate change in various parts of the Tertiary; we can tell that from the plants, and so on. But, compared to today, things are happening in decades that would take millions of years in the late Tertiary. That's a problem paleontologists can be more helpful with, trying to bring perspective for the public on the velocity of climate change. Scientists can be more publically engaged; we can tell the public what we see in the way climates are changing now. If we do not do that, who is going to do it? This topic is vitally important.

### Q: That can be difficult, you know, the nature of the record is so different.

A: But we have excellent dating tools; people are working on the deep oceans, doing isotopes and using magnetic calendars, you know, to make it pretty clear what the speed of change is. We could do more of that. I think we should, because we owe it to the public to explain that climate change is different now. Compared to prehistory times, this is rapid change.

### Q: I noticed that you are rarely labeled a paleontologist, even though for most of your professional life you've worked with fossil pollen. Is there a reason why paleontology doesn't come immediately to mind for many people?

A: I think many of the audiences I talk to don't think of paleontologists as being ecologists. And I always emphasize that area of my work. I explain to people that I dealt

with early landscapes, and I reconstructed the vegetation, using fossil pollen. Okay, that sounds like paleontology, but it's not quite the same as saying I'm a paleontologist. So, I do consider myself a paleontologist, and I'm not shy about that. By the way, I'm very proud to have your medal, telling me I was worthy.

### Q: We're proud to claim you.

A: Well, it'll be interesting to see if I can keep up my work a year or two more. It is interesting and fun.

### Q: In the last issue of Priscum, there was an article about women in the Paleontological Society. I noticed you were only the third woman to be awarded the Paleo Society medal, and this is the first year ever that both the Paleo Society medalist and the Charles Schuchert awardee were women. I wasn't sure how to phrase this question exactly, but I guess I was just curious whether you had a comment about that.

A: It is good to hear about the woman who just won the Charles Schuchert award [Bridget Wade]. Well, I think that it's quite clear, when you think about it, that women tend to be underappreciated in science, and in many cases undervalued. And I think that's true in paleontology, too. Here are a few names that are real winners. Elizabeth Collinson, of England, she's just incredible. She works with pollen and megafossils, and she knows more about the British Tertiary than I think anybody, and deserves a lot of recognition. There's a woman in Denmark named Dr. [Else] Friis, she set everybody to looking at fossil flowers, this business about tracking the evolution of flowering plants. Robyn Burnham, of Michigan, pointed out some differences between leaf environment and the CLAMP data, which is a statistical way of interpreting the shapes of

Burnham, R.J., & A. Graham. 1999. The history of Neotropical vegetation: New developments and status. *Annals of the Missouri Botanical Garden* 86:546-589.

Collinson, M.E., K. Fowler, & M.C. Boulter. 1981. Floristic changes indicate a cooling climate in the Eocene of southern England. *Nature* 291: 315-317.

Friis, E.M., K. Raunsgaard Pederson, & P.R. Crane. 2006. Cretaceous angiosperm flowers: Innovation and evolution in plant reproduction. *Palaeogeography, Palaeoclimatology, Palaeoecology* 232: 251-293.

Whitlock, C. & P.J. Bartlein. 1993. Spatial variations of Holocene climatic change in the Yellowstone Region. *Quaternary Research* 39:231-238.

## INTERVIEW WITH PS MEDALIST ESTELLA LEOPOLD

leaves, to interpret God knows everything, elevation, climate. If you look at plant litter on the forest floor compared with the canopy up above, one can learn a lot. Robin has done a lot of nice work on this. She got people's attention, criticizing the CLAMP work. And I want to mention one more, Cathy Whitlock from Montana State. She works on the ice ages, the Quaternary interval. We all consider Cathy the leading person on studying fire in the fossil record. She really knows what she's talking about internationally.

**Q: I read an anecdote that one of your early papers was published as "Miss Estella Leopold" rather than "Dr.," even though you had a Ph.D.**

A: I know, isn't that something? Yes. In the survey the geologists then seemed to treat women scientists as delicate objects—hence the "Miss Leopold". Yes, they used to do that to me in the Survey, as though we were not real scientists? I think most importantly, men tend to get the top jobs, with which they get a bully pulpit for publication and speaking or exerting authority. I think women can be much more appreciated in science than they are.

**Q: In the same vein, I was interested in the role of your mother, also named Estella, and the role that she played in your family's life. I couldn't find much information about her. But she must have been a remarkable woman, to have raised such a prolifically scientific family.**

A: Well, she and Dad were very close, and I thought they were very much in love and had great respect for each other. And I think all of us siblings were sure that Dad would NOT have made his career without Mother's support and love. She was really everything to him. And she was talented and musical and charming. She was Hispanic. And my mother was a great organizer and managed to help us grow up properly, ethically, with her golden values. Yes, she was really top notch. By the way, I didn't have Mother's name when I was very young. I changed my name because my teachers could not pronounce my name, which was Eloisa. When I asked Mother, may I have your name?, and she agreed; then I adopted Mom's name.

**Q: How old were you at the time?**

A: I was in fourth grade. It was a Catholic school, and the nuns couldn't manage to pronounce Eloisa. They thought I was Eloise.

**Q: I'm from a family of six kids, and we're all doing**

**different things. So it jumped out at me that all five Leopold children became prominent scientists, like your father.**

A: I guess it is a bit unusual. We are of course not like our father, but Dad gave us such remarkable experiences, when we were kids, in the wilds and camping. And maybe more importantly, we did so much together. That's an incredible thing: cooking, building the shed, camping, pitching the tent, everything, you name it, we had to do it together. Christmas presents—everybody had to go and make a Christmas present. He taught us carpentry. I find now that those outdoor experiences are just indelible. They stick out in my memory, and I think it was the same for my siblings.

**Q: I didn't want to end this without giving you the chance to add anything that I might not have asked. What do you want the paleontologists of the world to read about when they see this?**

A: I think those of us in geology and biology are very concerned about the rate at which we're exploiting the planet. I don't know how we're going to slow things down enough to save it. I want to quote my Dad, because when things were going to hell in a handbasket, he said, yes, things are looking really bad, but we have to keep trying to make things better. He was very discouraged about, for example, the problem of saving the wolves, because the deer population was getting out of hand. He understood the consequences but others did not. Scientists seem to understand the consequences of rapid climate change, and others do not. We need to speak up on this topic.

**Q: Being discouraged didn't prevent him from continuing his work, though?**

A: That's correct. Absolutely, he worked hard at it. But it was very discouraging; they called him a Bambi killer. It hurt. He was a very sensitive guy.

**Q: You're a member of the National Academy of Sciences, and you've received numerous awards including the International Cosmos Award and now the Paleontological Society Medal. I have to think that being interviewed by *Priscum* pales in comparison. I appreciate you taking the time to chat with me.**

A: Oh, I'm just delighted, and I want to say again how flattered I am that I even got the medal, I think that was just extraordinary. I couldn't believe it. I'm very pleased.

## ARE YOU TAKING ADVANTAGE OF ALL YOUR MEMBERSHIP BENEFITS?



The Society is pleased to announce that all members are eligible for substantial discounts on books published by many university presses, as well as the *Treatise on Invertebrate Paleontology* and publications of the Palaeontological Association. We are grateful to the publishers for their generosity!

**Log into the Members-Only PS page ([rock.geosociety.org/membership/paleo/](http://rock.geosociety.org/membership/paleo/)) for discount codes. Note that these discounts are for Society members only. Please do not distribute!**

**Indiana University Press:** Receive 30% off list prices of Indiana University Press books (sale items excluded). Enter the discount code at checkout. View their paleontology titles here: [www.iupress.indiana.edu/paleontology](http://www.iupress.indiana.edu/paleontology)

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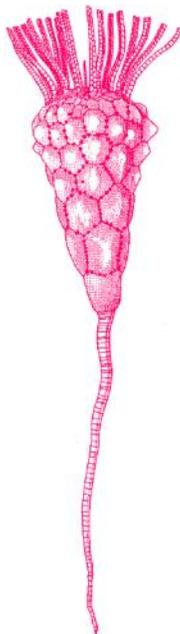
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**University of Chicago Press:** Receive a 30% discount when you use the discount code. This applies to all publications marketed by the University of Chicago Press books division. Website: [www.press.uchicago.edu](http://www.press.uchicago.edu)

**Treatise on Invertebrate Paleontology:** Members are eligible for a 20% discount on hard-copy volumes of the *Treatise on*

**Journal of Paleontology & Paleobiology:** 40% off the cost of Gold Open Access. PS members pay only \$1,500; non-member rate is \$2,500.

**Columbia University Press:** Receive a 20% discount on paleontology titles. For a full list of titles on sale, please visit [www.cup.columbia.edu/subject/40/35](http://www.cup.columbia.edu/subject/40/35). You can also access this list by clicking on "browse subjects," then selecting "Science" and then choosing "Paleontology" from the drop-down menu. After selecting the titles you wish to order, enter the discount code in the "redeem coupon" box. The box appears on the page after you enter your shipping and billing information and includes simple instructions.



### **PS Members receive discounts on books and other materials!**

***Invertebrate Paleontology.*** To receive your discount, you will need to order by fax (785-864-3636) or phone (785-864-3338) and provide the code Paleosociety2010. See the Treatise website [www.paleo.ku.edu/treatise](http://www.paleo.ku.edu/treatise) for prices and availability.

**Palaeontological Association:** Discounted member rates on publications of the Palaeontological Association ([www.palass.org](http://www.palass.org)).

**Wiley Publishers:** Society members receive a 20% discount on any Wiley title. Visit [www.wiley.com/WileyCDA/Section/id-815505.html](http://www.wiley.com/WileyCDA/Section/id-815505.html) to browse book titles available and use the listed discount code at checkout.

### **Interested in requesting funds for your conference session or fieldtrip?**

Organizers of Paleontological Society sponsored events can request funds from the Society to support students attending fieldtrips and speakers (who would not normally attend) of conference sessions. Contact Program Coordinator Tom Olszewski ([tomo@geo.tamu.edu](mailto:tomo@geo.tamu.edu)) for details.

## 2014 PS STUDENT RESEARCH GRANTS



THE PALEONTOLOGICAL SOCIETY invites applications from student members for a limited number of \$800 grants to support research in any field or aspect of paleontology. The top three proposals receive Mid-American Paleontology Society (MAPS) Outstanding Research Awards.

*Deadline 11:59 pm Pacific Time on February 24, 2014.*

### Who may apply?

Undergraduate and graduate student members of the Paleontological Society conducting research on any aspect of paleontology.

The program is not limited to U.S. students.

### How to apply:

All applications and letters of support will be accepted electronically by e-mail submission to [marc.laflamme@utoronto.ca](mailto:marc.laflamme@utoronto.ca). Please include the applicant's last name in the subject line of all items submitted by email. PDF attachments are preferred but MS Word-compatible documents will also be accepted.

Complete the application form available at <http://paleosoc.org/grantin.html> and attach a one page description of your project. Please use a 12-point font and 1 inch

margins. For additional instructions, please see the application form.

A letter of support from your research supervisor should be sent by email to [marc.laflamme@utoronto.ca](mailto:marc.laflamme@utoronto.ca).

Application materials must be received at by midnight (Pacific Time) on Monday, February 24, 2014. An email message of confirmation will be sent to all applicants.

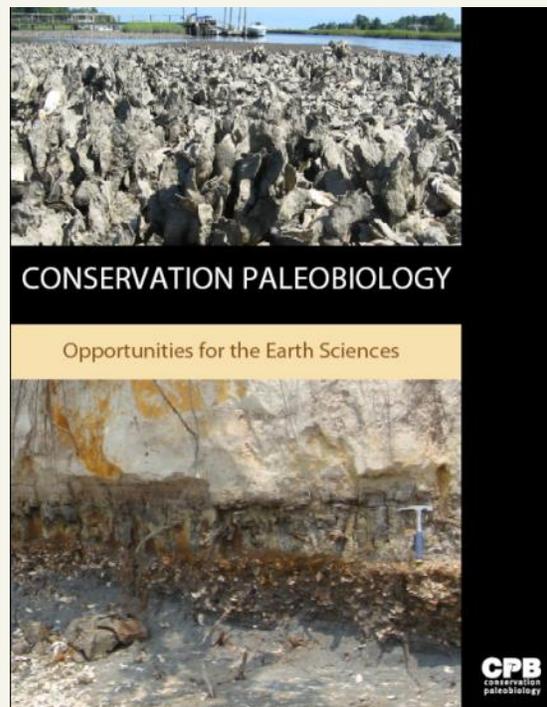
Awardees must submit a short summary of their project and photo upon completion. News releases and press clippings would also be appropriate.

The applicant is responsible for following university or federal guidelines and laws concerning the use of radioisotopes, radiation, human subjects, vertebrate animals, etc. The applicant must ensure that the proposed project is logistically feasible (e.g., verify outcrop access) before submitting the proposal. The applicant is also responsible for obtaining any permits that may be necessary for field collecting.

If the applicant is joining the Paleontological Society at the time of submission of the grant application, the membership application and payment must be sent separately to the address printed on the membership application form. Alternatively, join the Society on-line using the link provided on the Society's homepage at <http://www.paleosoc.org/>.

### Conservation Paleobiology in the Coming Decades

The final report of an NSF-funded workshop entitled "Conservation Paleobiology in the Coming Decades" is now available. The workshop, which was held at the Paleontological Research Institution in Ithaca, NY, June 3-5, 2011, was intended 1) to identify the grand challenges in conservation Paleobiology, 2) to provide Sedimentary Geology and Paleobiology program officers at NSF with a concise, articulate vision for the promotion of this research area, and 3) to identify the infrastructure needs and outreach efforts needed to make the approaches of conservation paleobiology more widespread and effective. A pdf copy of the report can be downloaded at: [www.conservationpaleobiology.org](http://www.conservationpaleobiology.org). Hard copies of the report can be obtained upon email request to Greg Dietl at [gpd3@cornell.edu](mailto:gpd3@cornell.edu).



## 2013 STUDENT RESEARCH GRANT AWARDEES

**Catherine Beck** (Rutgers University), Changes in ostracod assemblages and their implications for interpretations of recent lake-level fluctuations in Lake Turkana, Kenya. Ellis L. Yochelson Award.

**Jonathan Calede** (University of Washington), Biogeographic affinities of early modern mammalian communities in North America. Kenneth E. & Annie Caster Award.

**Ben Collins** (University of Alberta), Functional Morphology of Passive Suspension Feeding in *Composita*. N. Gary Lane Award.

**Dori Conteras** (UC Berkeley), Investigating the evolution of tropical rainforests: A functional analysis of the late Cretaceous Jose Creek Member, McRae Fm. Mid-America Paleontology Society (MAPS) Outstanding Student Research Award.

**Rowan DeJardin** (University of Leicester), Miocene diatoms and isotopes as indicators of environmental change: is there a correlation with stickleback evolution? Kenneth E. & Annie Caster Award.

**Nicole Dzenowski** (The University of Kansas), Large-Diameter of Probable Vertebrate Origin Structures in the Lower Permian (Wolfcampian) Cedar Mesa Sandstone (Cutler Group) of Southeastern Utah. Ellis L. Yochelson Award.

**Cole Edwards** (The Ohio State University), 34S isotope geochemistry of the Early-Middle Ordovician Pogonip Group, Great Basin, USA: implications of oxygenation during the Great Ordovician Biodiversification Event (GOBE). Allison R. "Pete" Palmer Award.

**Robin Green** (Indiana University), Ostracodes as proxies for Pleistocene climate history at early hominid site, Olduvai Gorge, Tanzania. Ellis L. Yochelson Award.

**Robert Haselwander** (Missouri University of Science and Technology), Reconstructing Holocene Climate History in Southern Missouri. Kenneth E. & Annie Caster Award.

**Spencer Hellert** (University of Illinois Urbana-Champaign), Causes of Trait Modularity and their Relation to Ontogeny in Bird forelimbs. Steven Jay Gould Award.

**John Hills** (Ohio University), Neoichnology of Three Burrowing Mygalomorph Spiders. Richard Osgood Award.

**Adam Jackson** (The University of Kansas), Ichnological Assessment of Nearshore Marine to Deltaic Depositional Environments of the Cretaceous Dakota Group, Cañon City, Colorado. Rodney M. Feldmann Award.

**Matthew Jones** (University of Kansas), Neoichnology of Bats: Implications for Pterosaur Locomotion. Ellis L. Yochelson Award.

**Renske Kirchholtes** (UC Berkeley), Phytoliths: a novel application to answering ancient questions. Mid-America Paleontology Society (MAPS) Outstanding Student Research Award.

**Ekaterina Larina** (Brooklyn College), Ammonite ecology and diversity just prior to the K/Pg mass extinction CUNY. Richard K. Bambach Award.

**Joshua Lively** (The University of Texas at Austin), The environmental and biogeographic context of Eocene marine vertebrate evo-

lution. Kenneth E. & Annie Caster Award.

**Emma Locatelli** (Yale University), Exploring the preservation potential of basal angiosperms: advancing our knowledge of taphonomic biases in the plant fossil record. James M. & Thomas J. M. Schopf Award.

**Sharon McMullen** (University of Wisconsin-Madison), Controls on the stratigraphic distribution of non-marine fossils: a case study in the Upper Jurassic Morrison Formation, western USA. Kenneth E. & Annie Caster Award.

**Lindsay Meador** (University of Massachusetts Amherst), Examining evidence of predation in Madagascar's extinct giant lemurs. Steven M. Stanley Award.

**Subhronil Mondal** (University of South Florida), Phanerozoic coupled changes in taxonomic and theoretical ecospace occupation diversity of bivalves. Steven Jay Gould Award.

**Haley O'Brien** (Ohio University), Investigating the Impact of Selective Brain Cooling on Artiodactyl Diversification. Mid-America Paleontology Society (MAPS) Outstanding Student Research Award.

**Elizabeth Petsios** (University of Southern California), Correlation of carbon isotope values with marine community structure in the Early Triassic Blacktail Creek Section of Beaverhead County, Montana. G. Arthur Cooper Award.

**James Proffitt** (Jackson School of Geosciences, University of Texas), Terrestrial locomotion in penguins: Hind limb evolution and function in waterbirds. Robert J. Stanton & James R. Dodd Award.

**Jansen Smith** (Cornell University), Remembering the Colorado River Delta: Geohistorical baselines of molluscan predator-prey interactions before damming of the Colorado River. N. Gary Lane Award.

**Allison Stegner** (University of California, Berkeley), Assessing small mammal response to Quaternary climate and land use change on the Colorado Plateau. G. Arthur Cooper Award.

**Lidya Tarhan** (University of California, Riverside), Trilobite Paleogeology and Mixed Layer Development: The Rusophycus Record. Allison R. "Pete" Palmer Award.

**James Thomka** (University of Cincinnati), Unusual echinoderm biotas and paleoceanographic perturbations: Implications for understanding faunal anachronisms. N. Gary Lane Award.

**Peter Tierney** (University of Chicago), Sharing an Evolutionary Cradle: Spatial Heterogeneity in early Metazoan Reefs and its Effects on Diversity Dynamics. Steven Jay Gould Award.

**Matthew Vrazo** (University of Cincinnati), Testing the integrity of stable isotopes in fossil marine arthropods. Rodney M. Feldmann Award.

**Robert Young** (Yale University), Laboratory Testing of a Substrate Mechanism for Decay Inhibition and Exceptional Preservation. Harry B. Whittington Award.

## 2014 PS OUTREACH AND EDUCATION GRANTS

The Paleontological Society works to increase the public's awareness and understanding of paleontology by enhancing formal and informal educational opportunities. The Paleontological Society Outreach and Education Grant provides support to our members for programs and activities involving educational outreach and community engagement.

**Deadline for submission is Friday, March 28, 2014.**

Potential fundable projects include, but are not limited to, field trips to fossil sites and/or museums for teachers and pre-college students, educator training and curriculum development, participation in local community initiatives, development of educational materials for classroom use, and website or other online material development.

The subject matter covered by outreach proposals may fall within any subdiscipline of paleontology/paleobiology. Particularly encouraged are projects that (1) include opportunities for undergraduate students to become involved in paleontological outreach to younger students or the public, (2) create new educational "apps" or other technologies, and/or (3) produce educational materials that could be distributed more widely through the PS website.

Prior recipients of a PS Outreach and Education Grant must wait one year before being eligible to submit another application (e.g., a 2013 grant recipient must wait until 2015 to submit another proposal). Prior recipients must also submit their required final report on the funded project before being eligible to apply for a second award.

### Amount of Grant

The Paleontological Society will issue up to six grants of \$2,500 each.

### Eligibility

Applicants must be members of the Paleontological Society at the time of application. Graduate student applicants should provide documentation of a professional member's willingness to serve as advisor for the project.

### Application

Applications for a PS Outreach and Education Grant must include:

A project proposal, three to five pages in length, single-sided, which must include:

(1) A project title; names and contact addresses of participating personnel; the proposer's Paleontological Society Member Number; a brief synopsis of the project; target audience (e.g., grade level, in-service teachers, the public); project description; goals of the project; expected

outcomes (including how they will be assessed); timeline; a discussion of the significance to the science education community.

(2) A detailed, itemized budget with justification of the uses of the PS Education & Outreach funds. We cannot pay overhead or indirect costs. Matching funds from other sources are strongly encouraged.

(3) A one page CV for each of the project personnel.

### Submissions

Email all application materials to Peg Yacobucci, Chair, PS Education & Outreach Committee: [mmyacob@bgsu.edu](mailto:mmyacob@bgsu.edu). Electronic files should be in .pdf, .doc, or .docx format.

### Review Process

Grantees will be selected by a subcommittee of the Paleontological Society's Education & Outreach Committee. Evaluation criteria include the goals, significance, feasibility, creativity, and likely impact of the project, and the soundness of the budget. Recipients will be notified by May 15, 2014.

### Grant Award Procedures

Grant awards can be made directly to individuals or to institutions. Please be advised that if a grantee opts to receive the funds directly, the Paleontological Society is required to issue an IRS 1099 form at the end of the calendar year. The grant funds may or may not be taxable; grantees must make that determination themselves. The Society cannot offer tax advice. Grantees are required to submit a follow-up project report by March 2015 detailing the project's outcomes. Details on the reporting requirements will be sent to all grantees.

### Copyright permission procedures for *Journal of Paleontology* and *Paleobiology*

For those who wish to request permission to reproduce figures and other material from the Paleontological Society's publications (the *Journal of Paleontology*, *Paleobiology*, *Papers in Paleontology*, *Short Course Notes*, *Special Publications* and educational brochures for which the Society currently holds copyright), please refer to the information on the PS website [www.paleosoc.org/copyright.htm](http://www.paleosoc.org/copyright.htm). The contact person to process your request is:

Bryan Hibbard  
Permissions  
The Paleontological Society  
P.O. Box 9044  
Boulder, CO 80301  
E-mail: [bhibbard@geosociety.org](mailto:bhibbard@geosociety.org)

## PS EDUCATION AND OUTREACH GRANT AWARDEES FOR 2013

To further its mission of promoting the science of paleontology, the Paleontological Society has committed resources to provide support to our members for community engagement and educational outreach. These activities are critical to capturing the imaginations of children and encouraging support for our field among the public.

The Paleontological Society is pleased to announce the 2013 recipients of PS Outreach and Education Grants:

**Michael Gibson** (University of Tennessee-Martin)  
*"Something Is Missing Here: A Teacher Field Camp in Fossils and Taphonomy"*

In this field-based short course, science teachers conduct analyses of the taphonomy of the Cretaceous Coon Creek Lagerstätte, and design inquiry-based lessons for their own classrooms.

**Elizabeth Hadley** (Stanford University)  
*"Conserving and Understanding a Mammalian "Living Fossil", *Solenodon paradoxus*, through Paleontological Outreach in the Dominican Republic"*

Through a museum exhibit at the Museo Nacional de Historia Natural in Santo Domingo, and bilingual children's book and online educational materials, this project will

use the story of the living fossil *Solenodon* to explore the geological and paleontological history of the Caribbean.

**Matthew Powell** (Juniata College)  
*"Evolution of You: An Illustrated Children's Book about Evolution"*

This illustrated electronic book for young children will show them where they fit in the tree of life by describing their evolutionary heritage, from the present back to the earliest life on Earth.

**Greg Wilson** (University of Washington)  
*"The Discoveries in Geosciences (DIG) Field School for Teachers"*

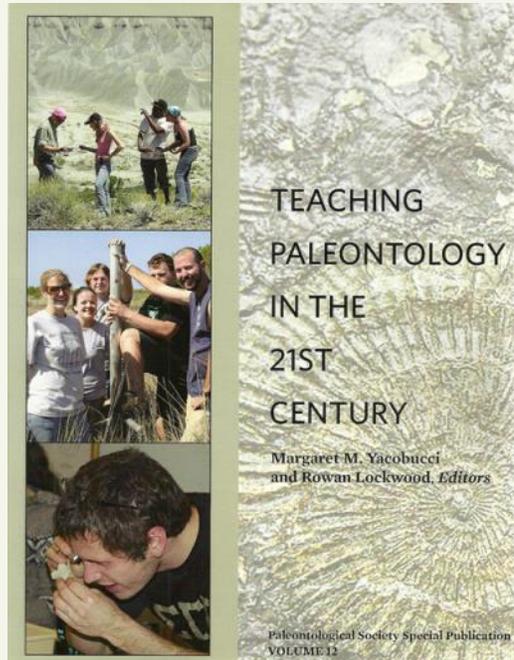
This summer field school gives rural Montana and Pacific Northwest teachers a chance to learn more about the dinosaur-rich strata in their backyards, and also provides curricular materials for their students to engage in scientific inquiry.

Each awardee receives \$2,500 to carry out their educational outreach activities.

Please consider applying for the 2014 Outreach and Education Grant Program in the spring!

### Teaching Paleontology in the 21st Century

Now available as the new Paleontological Society Special Publication #12, edited by Margaret Yacobucci and Rowen Lockwood. This 256-page volume includes chapters dedicated to teaching undergraduate paleontology courses with an eye for new pedagogic methods, high-quality teaching activities, and the current research into what works best in the classroom. 256 pp. Available for \$25 at [www.museumoftheearth.org/publications/pubdetails.php?pubID=5750](http://www.museumoftheearth.org/publications/pubdetails.php?pubID=5750). And check out the on-line supplementary content at: <http://serc.carleton.edu/NAGTWorkshops/paleo/index.html>.



## DISTINGUISHED LECTURER/EDUCATOR PROGRAM

Did you know that the PS sponsors distinguished lecturers to visit your department? Pass this message along to the person coordinating your department seminars and suggest that they invite a paleontologist in for the upcoming semester!

***The Society will cover up to \$400 towards travel for a speaker to visit your department !***

The Paleontological Society is proud to support the [Distinguished Lecturer Program](#), with the goal of bringing outstanding scientists to colleges, universities, and public events to speak about cutting-edge paleontological research, evolution, and the nature of science. The long history of life on our planet offers countless opportunities to explore the mechanisms and fascinating consequences of evolution, extinction, and ecosystem change. The response of the world's biota to global climate change has become an important issue today, and paleontologists can provide an important perspective on this from research in the deep-time record. Through this program, we hope to increase the visibility of paleontological research and to communicate its unique insights to the community at large.

We support three lecturers each year on rotating, two-year terms. Speakers have agreed to make themselves available on an expenses-only basis; no honorarium is required. **The Society provides up to \$400 toward speaker travel.** The host institution is expected to cover on-site expenses, including meals and lodging.

Travel support is currently available on a first-come, first served basis, but this process may be amended if demand is high. See [www.paleosoc.org/speakerseries.html](http://www.paleosoc.org/speakerseries.html) for more details.

Here is information on his year's speakers. To request a speaker, contact that individual directly.

**Nick Pyenson** (2013–2015),  
Smithsonian Institution  
([PyensonN@si.edu](mailto:PyensonN@si.edu))

- The life and death of whales: new discoveries of world's largest animals
- Cetaceans in silico: 3D digitizing a fossil whale graveyard



in the Atacama of Chile

- The evolution of marine mammals and the many returns to seas

**Patricia Kelley** (2009–2014), UNC at Wilmington  
([kelleyp@uncw.edu](mailto:kelleyp@uncw.edu))

- *Teaching evolution with integrity and sensitivity*
- *Evolution and creation: conflicting or compatible?*
- *The arms race from a snail's perspective: evolution of the naticid gastropod predator - prey system*



**Dena Smith** (2013–2014), University of Colorado Boulder (Dena.Smith@colorado.edu)

- *Fossil Insects: Exceptional Preservation and Incredible Diversification*
- *Eocene Ecology: Insects, Plants and Climate Change*
- *Brown Bag/Conversation - Supporting Underrepresented Students and Faculty in the Sciences*



### Want to purchase back issues of Society Special Publications?

Effective May 2009, Paleontological Research Institution in Ithaca, New York, assumed the role of publications sales agent for back issues in the PS Special Publications series. All previous publications are available for order (\$20 per volume plus shipping and handling) at the PRI Publications website. Starting with volume 16, volumes will be \$25.00 per copy. Order at [www.museumoftheearth.org/publications/bookstore.php](http://www.museumoftheearth.org/publications/bookstore.php) or contact Dr Paula M. Mikkelsen, PRI Director Publications ([pmm37@cornell.edu](mailto:pmm37@cornell.edu) or by phone 607-273-6623, ext 20).

# PS INTERNATIONAL RESEARCH PROGRAM (PALSIRP SEPKOSKI GRANTS) ANNOUNCEMENT FOR 2014

Ronald Parsley, PalSIRP Sepkoski Grants Coordinator

The Paleontological Society is pleased to announce continuation and modification of its small grants program for paleontologists living in Eastern Europe and republics of the former Soviet Union. **For 2014, the Paleontological Society will award fifteen grants of US \$1000.** These grants will be made directly to individuals and not to institutions. Grantees will be selected by a committee of the Paleontological Society based on the quality and feasibility of the proposed research. Consideration will be given to paleontologists of all levels ranging from graduate student research to research by active retirees. ***PalSIRP Sepkoski Grants*** are named in honor of Dr. J. John Sepkoski, Jr., founder of the program. Dr. Sepkoski died at age 50 in 1999.

**Applications for a *PalSIRP Sepkoski Grant* must include the following four items, all typed in English. (See [www.paleosoc.org/palsirp.html](http://www.paleosoc.org/palsirp.html) for further information.)**

1. The **Cover sheet** (downloaded from <http://paleosoc.org/SepGrantCovSheet2014.doc>) completely filled out and sent with the rest of the application.
2. **Cover letter**, stating the applicant's full name as it appears on the passport, passport number, date of birth, institutional affiliation, address, telephone number, FAX number, and *especially the e-mail address*. The letter should also provide names and addresses (including e-mail) of North American/European Community (exclusive of former Warsaw Pact countries) paleontologists familiar with the applicant's research; these persons will be used as referees and will be contacted by the *Sepkoski Grants* Committee.
3. **Research proposal**, no longer than two pages, single-sided divided into the following sections:
  - i. A project title,
  - ii. A brief description of proposed research,
  - iii. The significance of the research, both regionally and globally, and
  - iv. The general uses funds from the *Sepkoski Grant*.

The subject matter covered by grant proposals may be in any field under the discipline of paleontology/paleobiology. Applicants should look over the *Journal of Paleontology* as a guide to acceptable topics. Appropriate ancillary uses of *Sepkoski Grant* funds include (but are not limited to) salary support, domestic and foreign travel, and equipment pur-

chase. Requests for field expenses, publication costs, attendance at scientific meetings, and related aspects to any of these areas is acceptable. If you receive a grant, we ask that a brief accounting of how the funds were spent be sent a year after the grant is received.

4. **Curriculum vitae (C.V.)** listing birth date, education, current professional position, and all published papers, articles, and books. Additional information, such as employment history, awards, participation in international conferences and projects, etc., may be included.

The cover sheet and items (2-4) must be **sent by e-mail** (in Microsoft Word or plain-text) **as a single attachment (not multiple attachments)** to [parsley@tulane.edu](mailto:parsley@tulane.edu). **Please do not submit proposals by post!**

Proposals must be received by **April 1, 2014** to be considered for 2014 funding. Proposals received after that date will not be considered. Proposals not written in English will be returned without consideration.

Paleontologists living in the following countries are currently eligible for *PalSIRP Sepkoski Grants*: all republics of the former Soviet Union, including the Baltic States, Mongolia, and nations in Eastern Europe (other than East Germany), including Poland, the Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Albania, and the countries of the former Yugoslavia.

There is no limit to the number of times a paleontologist may apply for a *PalSIRP Sepkoski Grant* but only one application, per year, will be considered. Awards are usually made in November and December.

**Applicants for the 2014 grant program should contact their North American or European Community referees by e-mail to determine their willingness to act as recommenders. It is also suggested that applicants send a copy of their proposal to their referees for informational purposes. We stress on the strongest terms the importance of this.**

The Paleontological Society asks all colleagues for their assistance in advertising *PalSIRP Sepkoski Grants*. Please send this grant application information to your colleagues in Eastern Europe and the former Soviet Union. ↗



## CONFERENCE ANNOUNCEMENTS

### Fourth IPC to be held in Mendoza, Argentina in 2014

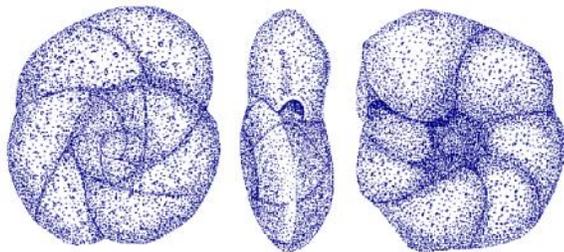
The Organizing Committee of the Fourth International Palaeontological Congress to be held in Mendoza (Argentina) in 2014 is pleased to announce that the First Circular is now available at <http://www.ipc4mendoza2014.org.ar/wp-content/uploads/2012/12/1st-Circular-4th-IPC1.pdf>. You can also visit us at <http://www.ipc4mendoza2014.org.ar/category/news/> and find detailed and updated information about the event.

### TAPHOS 2014

The 7th International Meeting on Taphonomy and Fossilization, TAPHOS 2014, will be held in Ferrara, Italy, on September 11-13, 2014. Theme sessions and field trip proposals are presented in: <http://web.fe.infn.it/taphos2014/>

Please feel free to contact us ([taphos2014@unife.it](mailto:taphos2014@unife.it)) to express your interest or if you have any questions.

We are looking forward to seeing you in Ferrara!



### Student membership

There are many benefits to student membership in the Society, including opportunities for research grants, travel grants, and poster awards at Society meetings. Check [www.paleosoc.org/students.html](http://www.paleosoc.org/students.html) for additional benefits. The current student representatives are Sarah Tweedt (University of Maryland, [TweedtS@si.edu](mailto:TweedtS@si.edu)) and Max Christie (Pennsylvania State University, [mchristie09@gmail.com](mailto:mchristie09@gmail.com)). And for those on Facebook (whether student or not!), keep up on the latest Society news at <http://www.facebook.com/pages/The-Paleontological-Society/224953157529926>.

### Digital articles of the *Treatise* available

*Treatise Online* will publish chapters prepared for parts of the *Treatise on Invertebrate Paleontology* as they are ready, rather than waiting for an entire hard copy *Treatise* to be printed. The first series of papers, being parts of the forthcoming volumes listed below, are available for purchase as individual chapters from [paleo.ku.edu](http://paleo.ku.edu). Members of the Paleontological Society, Palaeontological Association, and SEPM can access these for free directly through their respective member web page.

Part E (Revised), Porifera, vol. 4, Hypercalcified Porifera

Part G (Revised), vol. 1, Bryozoa

Part L (Revised), Mollusca 4, vol. 3B, Triassic and Jurassic Ammonoidea

Part M, Mollusca 5, vol. 1, Coleoidea

Part N (Revised), Mollusca 6, vol. 1, Bivalvia

Part P (Revised), Arthropoda 2, vol. 1, Chelicerata

Part R (Revised), Arthropoda 4, vol. 1, Crustacea

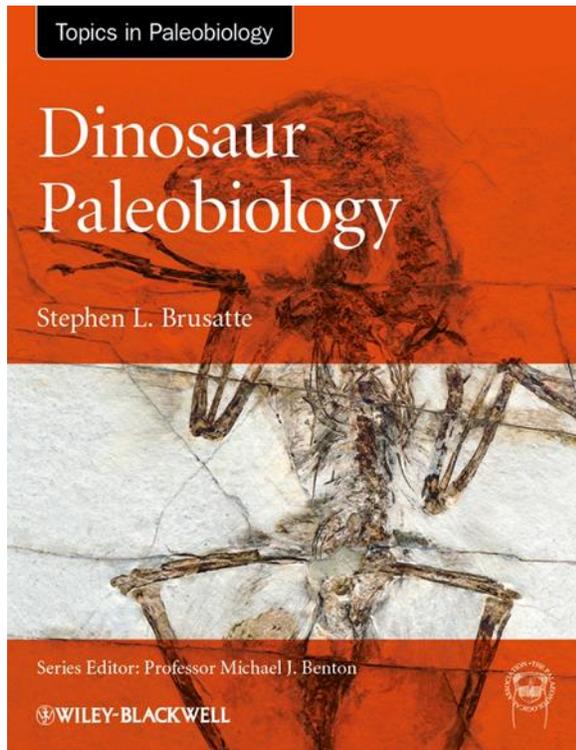
Part T (Revised), Echinodermata 2, vol. 1, Crinoidea

Part V (Revised), vol. 1, Graptolithina

### Interested in chairing a paleontology-themed session at a conference?

Considering proposing a paleo-oriented topical session at GSA, a GSA sectional meeting, American Geophysical Union (AGU), American Association for the Advancement of Science (AAAS), Society for the Study of Evolution (SSE), Ecological Society of America (ESA), or another conference? Paleontological Society sponsorship allows you to apply for PS funds to help cover travel/registration expenses for speakers who do not normally attend. Contact Tom Olszewski ([olszewski@geos.tamu.edu](mailto:olszewski@geos.tamu.edu)) for more information!

## BOOK REVIEWS



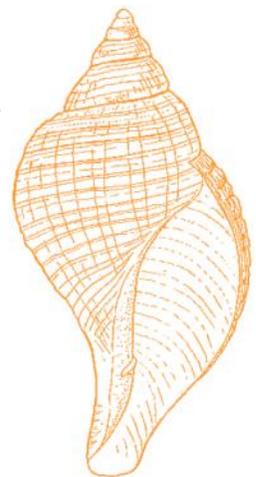
**Brusatte, S.L. 2012. *Dinosaur Paleobiology*. Wiley-Blackwell, New York, 336 pp. (\$119.96 cloth, \$67.96 paper, \$55.99 e-book with 20% PS discount.)**

**Reviewed by J. Bret Bennington (Hofstra University)**

Like it or not, paleontology and dinosaurs are nearly synonymous in the mind of the public. I was several years into my Ph.D. research on the long-term stability of Paleozoic marine ecosystems when my mother exclaimed, with barely concealed disappointment, “You mean you *don’t* dig up dinosaurs?” When I bring rocks, fossils, and minerals into a public school classroom, it’s the dinosaur fossils that generate the most excitement and greatest number of questions. My undergraduate course at Hofstra University on *Dinosaurs and the Mesozoic World* is always fully enrolled. People find dinosaurs fascinating (I confess, I do too). So, regardless of your area of expertise in paleontology, if you expect to live up to the public’s expectations of a paleontologist, you had best know something about dinosaurs. Fortunately, we now have Stephen Brusatte’s *Dinosaur Paleo-*

*biology* to help us stay several steps ahead of even the most precocious ten-year-old dinosaur fanatic. This is a reference work of wide-ranging technical expertise that reads like a good piece of science journalism. Forgive the cliché, but I couldn’t put it down.

Brusatte begins by considering the question of what makes a dinosaur a dinosaur, leading to a clearly written explication of where dinosaurs fit into vertebrate phylogeny. In a style that carries through the entire book, Brusatte considers the history of the question, cites important papers in the evolution of thinking on the subject, then delves into the most recent technical literature, clearly explaining the technical details. What could be a tedious listing of anatomical minutia is, instead, delivered as an enlightening exposition supported by excellent annotated photos, drawings, and diagrams, most taken directly from the research literature. From an overview of vertebrate phylogeny, Brusatte proceeds to catalogue the fossil material of dinosaurs, covering hard-tissue remains and soft-tissue remains before returning to a more detailed foray into the phylogeny of the dinosaur clade. In this chapter the text is supported by Scott Hartman’s elegantly simple reconstructions of dinosaur skeletons (which would benefit from scale bars—make a note for the next edition). Hard and soft parts are united in a chapter on dinosaur form that explains how morphometric analysis and modeling (clearly one of the author’s areas of expertise) can be used to interpret size, mass, and sexual dimorphism. After covering form, Brusatte moves on to the analysis of function applied to locomotion and posture, then feeding and diet. In each of these chapters, major dinosaur clades (theropods, sauropodomorphs, ornithischians) are discussed with reference to where they likely fall along a scale of traits bounded by crocodylians at one end and precocial birds at the other.



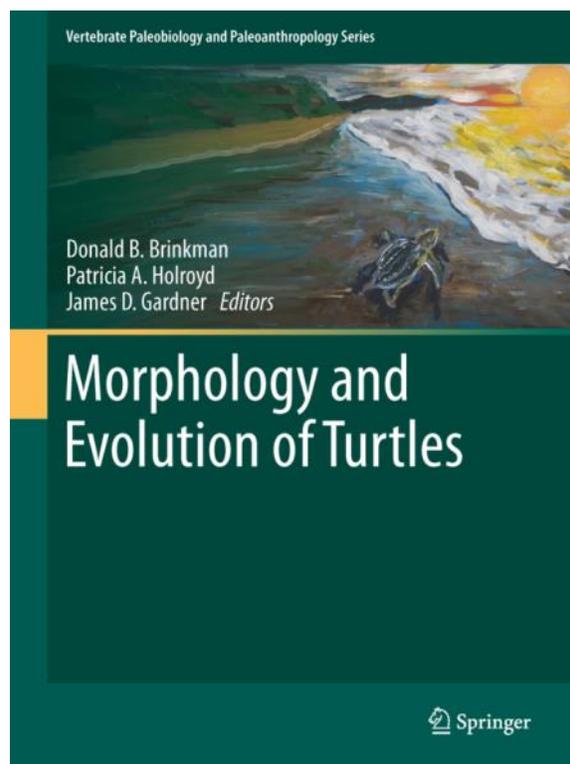
## BOOK REVIEWS

Implicit in these discussions is the question of when in the evolution of dinosaurs did the various traits and behaviors seen in modern birds evolve. One quibble I have with Brusatte's approach to understanding dinosaur behavior is that he is clearly enamored of biomechanical analysis and less interested in the trace fossil record as a reliable source of insight into dinosaur locomotion and feeding. He espouses biomechanical modeling as a way to get around uncertainties inherent to the fossil record without acknowledging the epistemological point that, although modeling can tell us how dinosaurs *could* have behaved, only trace fossils can show us how they actually *did* behave.

A fascinating chapter on dinosaur reproduction, growth, and physiology presents the evidence for a range of reproductive behaviors, growth strategies, and metabolisms in different dinosaur clades. Brusatte makes short work of the perennial debates over whether dinosaurs were "hot-blooded" or not, noting that this question is overly simplistic and that the evidence available to proxy for dinosaur metabolic rates is often inconclusive. That said, he does conclude with confidence that dinosaurs had elevated metabolisms compared to living reptiles and physiologies that were similar, if not identical, to living birds and mammals.

Larger issues of paleoecology and macroevolution in dinosaurs are covered in the last two chapters, concluding with a "Grand Narrative of Dinosaur Evolution" that devotes all of four pages to the great mystery of the K-T extinction. As with the controversy over dinosaur metabolism, Brusatte is somewhat dismissive of the debate over asteroid impact vs. volcanism as the cause of the demise of the non-avian dinosaurs, mostly because, as he explains, the focus of his book is on the biology and evolution of living dinosaurs. One gets the impression that he just isn't that interested in why dinosaurs went extinct because the available evidence suggest that the extinction resulted from an unfortunate convergence of events (bolide impact, sea level fall, flood basalt volcanism) that had little to do with the biology of the dinosaurs themselves. Bad design would be interesting, bad luck just isn't.

I enjoyed reading this book so much I wish I could use it as a text in my Introduction to Dinosaurs class. Unfortunately, it's a bit too technical for my undergraduates who lack a background in the fundamentals of paleontology, vertebrate anatomy, and vertebrate phylogeny. However, for biologists and paleontologists working outside of the great dinosaurian clade, this is an excellent reference and a quick way to get up to speed on the fascinating and fast-evolving world of dinosaur research. No doubt in five years the book will already be out of date, so we can only hope that Dr. Brusatte will be ready with an updated edition of this excellent review of the state of the art in dinosaur paleobiology.



**Brinkman, D. B., P. A. Holroyd, and J. D. Gardner, editors. 2013. *Morphology and Evolution of Turtles*. Vertebrate Paleobiology and Paleoanthropology Series. E. Delson and E. J. Sargis, eds. Springer, Heidelberg, Germany, 577 pp. (\$139 hardcover, \$109 e-book.)**

**Reviewed by Rituparna Bose (The City University**

## BOOK REVIEWS

### of New York)

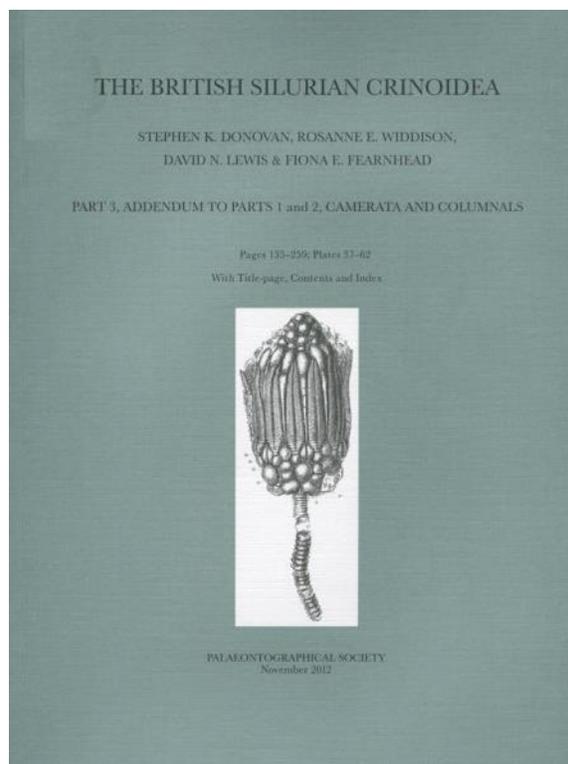
Turtles offer unique and novel insights into the patterns of distribution of Mesozoic fossil vertebrates and the degree to which faunal interchange between continents and latitudinal zones within a continent were possible. This volume recognizes the vast contributions of Dr. Eugene Gaffney, who has extensively studied the fossil and living turtles worldwide and has published numerous papers in the area of turtle systematics, phylogeny and evolution in the last four decades. This book describes the latest research on fossil turtles and thus is a substantial addition to the field of vertebrate paleontology.

This volume is the collective effort of leading experts in the field, who have put together a collection of focused research and review papers that broadly deals with multiple aspects of the evolutionary history and morphology of turtles. Specifically, Part I briefly describes the life and accomplishments of Eugene Gaffney. Part II elucidates the origin and describes the anatomy and embryonic development of turtles. An interesting chapter is dedicated to the description of the evolution of turtle shells. Part III describes the early diversification of turtles detailing the taxonomy, systematics and phylogenetic relationships of the group. Part IV and V elicit the morphological diversity, biogeography and paleobiology of Mesozoic and Cenozoic turtles. Part V also describes old and new taxon assemblages from Europe, Australia, Asia, and Americas. Finally, Part VI, which may be interesting to veterinarians as well, documents the pathologies, anomalies and variation in turtle skeletons. Overall, this work will be an essential resource for all global researchers interested in the morphology and evolution of reptiles, including the most intriguing of them, the turtles.

Understanding the pattern and process of change in the continental biota both in time and space could help us assess the environment in which they lived, and further evaluate how environmental changes could alter the Earth's biota in the future. This can further shed light on the diversity of reptiles that lived in the past and can help determine the environment in which the living reptiles can adapt and

survive. Besides understanding the response of morphology of turtles to the past environment, it can help with conserving the living turtles and other reptiles from the current abruptly changing climate.

Finally, the broad scope of work presented in this comprehensive volume can be furthered by taxonomists in the area who can draw connection between living and fossil turtles by using advanced geometric morphometric techniques. The use of such advanced statistical techniques will allow making accurate inferences on morphological diversity in ancient species and perhaps, promote biological conversation. This is a massive volume which takes forward the seminal work of Eugene Gaffney, and will be very useful to students, researchers, and scientists in the field of paleontology and biology.



**Donovan, S. K., R. E. Widdison, D. N. Lewis and F. E. Fearnhead. 2012. The British Silurian Crinoidea. Part 3. Addendum to Parts 1 and 2, Camerata and Columnals. *Monograph of the Palaeontographical Society, London***

## BOOK REVIEWS

638, 166 pp. (UK£115.00 / ≈\$190 paper.)

Reviewed by Bradley Deline (University of West Georgia)

The Silurian crinoids from the British Isles are historically important and the iconic fauna from the Dudley area are recognizable in museum collections and displays the world over. These crinoids were included in the first modern scientific work on fossil crinoids in 1821 (Miller 1821) and were formally described shortly after (Phillips 1839). This history of research on the British Silurian crinoids is both a blessing and a curse, the former owing to hundreds of years of intense sampling and the later resulting from lost types, shifting stratigraphic boundaries, and archaic taxonomy that needs updated.

Steve Donovan and his co-authors (Rosanne Widdison, David Lewis, and Fiona Feanhead) are up to the task of modernizing the descriptions and taxonomy of the British fauna that represents the transition between the Early and Middle Paleozoic crinoid assemblages. Previously, Donovan *et al.* (2009 and 2010) examined the disparid and cladid crinoids, and in this *British Silurian Crinoidea*, Part 3, they tackle isolated columnals and the camerates, which includes well-known genera such as *Dimerocrinites*, *Eucalyptocrinites*, and *Scyphocrinites* (though the British examples of '*Scyphocrinites*' likely belong to a new genus ancestral to those from Morocco). The crinoids examined in this volume are beautifully illustrated (including 26 plates) and the descriptions are clear and concise. Moreover, the descriptions and striking photographs are often presented alongside historic illustrations showing the evolution of paleontological methods and taxonomic ideas over the last 200 years.

This monograph also examines the morphology and taxonomy of isolated columnals (not surprising given Donovan's expertise in crinoid columnals). Disarticulated columnals are often overlooked in areas, such as the Dudley region, with an abundance of well-preserved crinoids, and columnals from the Silurian are ignored in comparison to the

stems of Ordovician crinoids, which are thought to show higher levels of morphologic variation. As Donovan *et al.* point out, this is an oversimplification with the Silurian fauna including aberrant forms such as *Floricornus*, which resemble flowers and are the subject of multiple functional hypotheses.

In addition to the careful taxonomic work, Part 3 also explores several patterns that are illuminated by a reexamination of the Silurian fauna of the British Isles, such as how classifications have changed since the original designations from Phillips (1839). Furthermore, this compilation describes how this fauna differs from Donovan's previous work on Ordovician crinoids and illustrates the extent to which the Late Ordovician extinction led to a massive turnover in Paleozoic crinoids. In another interesting comparison, the authors show how the superbly preserved fauna from the Dudley area dwarf all of the other localities in the Wenlockian, illustrating the importance of Lagerstätten in taxonomic studies.

Addressing an issue that transcends taxonomy and relates to current discussions regard the future of publication in paleontology, Donovan also discusses the problems that arose from the access issues surrounding Webster's compilation of Paleozoic crinoids (Webster 2003). This compilation included synonymies, taxonomy, and a bibliography of Paleozoic crinoids and felt like a close personal friend to students and scholars of Paleozoic crinoids. The Geological Society of America hosted this easily searchable resource until it suddenly disappeared in 2010 and it currently remains inaccessible. Donovan *et al.* points out how their research program has been restricted (as have many others, myself included) based on "a publishers whim" and warns against an overzealous movement toward online publication giving a reminder that hard copies are still relevant in



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the digital age.

In conclusion, *The British Silurian Crinoidea; part 3, Addendum to Parts 1 and 2, Camerata and Columnals* is a gorgeously illustrated monograph that would be a wonderful addition to the shelf of echinoderm enthusiasts, scholars of the Paleozoic, and students of British geology and paleontology.

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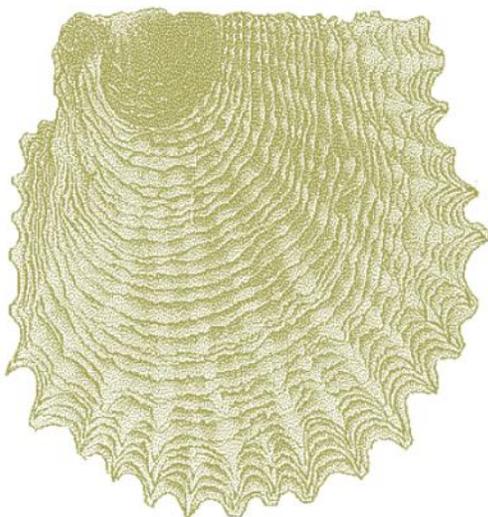
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## Visions of a Vanished World

The Extraordinary Fossils of the Hunsrück Slate

Gabriele Kühl  
Christoph Bartels  
Derek E. G. Briggs  
Jes Rust



**Kühl, G, C. Bartels, D. E. G. Briggs and J. Rust. 2012. *Visions of a Vanished World: The Extraordinary Fossils of the Hunsrück Slate*. Yale University Press, New Haven, CT, 128pp. (\$40.00 cloth.)**

(1) **Reviewed by James C Lamsdell (University of Kansas)**

The Devonian strata of the Hunsrück Slate, known from the Rhine Valley in western Germany, hold some of the most photogenic and scientifically important Paleozoic fossils in the world. This volume—appropriately titled *Visions of a Vanished World*—documents the fantastic and often-bizarre fauna found amongst the slate. The fossils themselves are spectacular, with a striking gold color imparted to them through the pyritization process that preserved much of their soft parts, and the book makes full use of this through a large number of exquisite color photographs (alas, my preview copy contains only low resolution images, but having seen a finished version of the book I can attest to how good the photographs look).

The book is written by four experts who between them have

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published dozens of papers on the locality, its fauna and their mode of preservation. The book itself covers all three of these topics, although the majority of page space is naturally devoted to the animals themselves. The first ten or so pages deal with the locality itself, providing a brief history on the discovery of the locality and its excavation along with basic geological facts including its age, environment of deposition, style of preservation, and significance of the fossils. Although brief, this section contains a lot of important information and provides the lay-reader with the necessary background to appreciate these fossils as more than just beautiful fossils. The Hünsruck Slate represents the most diverse collection of Devonian marine fossils in the world, and is a unique window into the Devonian marine ecosystem.

The following eighty pages focus on the animals that comprise the fauna, and are organized in such a way so that each animal is set into its broader context within the fauna, with the section being divided between fixed bottom dwellers, mobile bottom dwellers and free swimmers. In this way the reader gains an appreciation for these species as living creatures, understanding their role in the ecosystem and how they would have interacted with each other. Each group of animals is presented with numerous photographs of the most spectacular Hunsrück specimens, a brief explanation of the groups' history and defining features, and then a discussion of their mode of life. Finally, the last ten pages cover additional fossil evidence of the comings and goings of the Devonian creatures, including coprolites, trackways, and injuries. These specific examples bring the fauna to life, giving you a real feeling of how these animals coexisted.

The book is exceptional, and of interest to both amateurs and professionals. The photographs are detailed and high quality, something always welcome from a scientific standpoint as a number of the older papers have less than stellar figures. Overall, a must-buy for anyone interested in Lagerstätten or in Palaeozoic marine communities.

(2) **Reviewed by Brian R. Pratt (Co-editor of *Journal of Paleontology*, University of Saskatchewan, Saskatoon)**

About a year ago, Kühl and colleagues' *Visions of a Vanished World* (VWV) large-format tome arrived unexpectedly in my mailbox, presumably meant for review in *Journal of Paleontology*. We don't do book reviews in the journal, but as I wanted to keep it, duty called and a contribution to *Priscum* was in order. I have to admit to having a soft spot for books with lots of pictures of invertebrate fossils, provided the photographs and drawings do justice to the specimens and the text is pitched at a decent level. Rather too many introductory undergraduate geology textbooks, for example, don't measure up very well on both counts.

Most every reader probably already knows about the Hunsrückschiefer, *Schiefer* being the German word for slate, and sometimes used for shale too. I first encountered this Lower Devonian deposit via the papers on its arthropod fauna by Wilhelm Stürmer whose spectacular X-ray images took advantage of selective pyritization of both soft and hard tissues. This is what makes the Hunsrückschiefer a true Lagerstätte and an unmatched window onto the life and times of an intra-cratonic Devonian marine basin. Maybe some readers already own a copy of its 1998 predecessor, *The Fossils of the Hunsrück Slate: Marine Life in the Devonian* (Cambridge University Press, Cambridge) by Christoph Bartels, Derek Briggs and Günther Bräse. That book contains more technical information and the illustrations, not as spectacular mind you, are mostly of different specimens, so this new volume does not duplicate it.

VWV starts with the geological and historical background. For centuries these rocks have been exploited for roofing slate and building stone. Fossils were discovered by quarrymen when they split the slate, and over the past 150 years substantial collections have been made—good specimens are exceedingly rare and the casual collector poking about in the spoil heaps does not walk away with a hoard, that's for sure. Other famous Lagerstätten also give up their treas-

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ures grudgingly. The book goes on to describe the special preparation techniques that are required: time-consuming scraping with blades and needles, careful sandblasting with powdered Fe using an air-abrasive apparatus, and X-ray imaging. The rest of the book is essentially an atlas of the main benthic elements, first the sessile benthos, then the mobile, then the nekton, then finally some other features such as coprolites, evidence of predation and trails.

And the photography is fabulous! The pictures are mostly in color, which brings out the pyritization, especially where replacement is dense. In addition there are radiographs, some drawings, several lithographs reproduced from 19<sup>th</sup>-century descriptions, and a few specimens representing modern analogs. The specimens are very well chosen indeed. Most are single specimens, but others offer a glimpse of what the community really consisted of. Figure 10, for

example, shows two gorgeous siliceous sponges lying parallel amidst a scattering of contorted ophiuroid carcasses. Figure 67 shows a bunch of dead trilobites in different orientations, interestingly several with the thorax arched. The section on echinoderms is a delight: mitrates rendered golden by pyrite, a blastoid with its mop of brachioles swept back by the current, exquisitely fine plate details of edrioasteroids, and a selection of splendid examples of the remarkably diverse crinoid fauna that reaches 70 species, quite astonishing to my mind for a clastic sedimentary system. The following section completes the echinoderm contingent with photographs of ophiuroids and asteroids, along with one of three sea urchin specimens known. (Just three? What to make of that? The nuances behind simple presence-absence data...)

Equally jaw-dropping is the fauna of remarkably Cambrian-like arthropods, belonging to the sea spiders, the

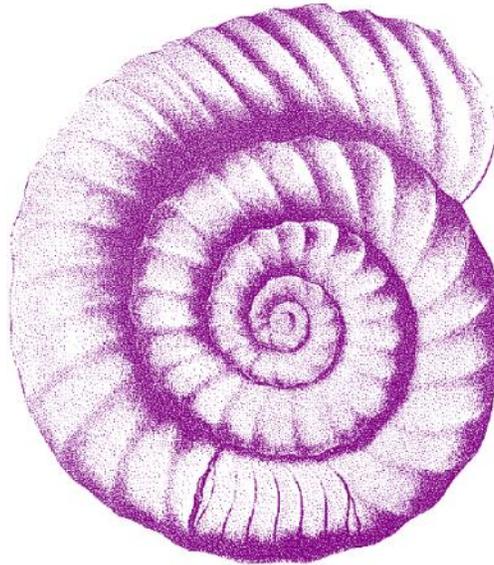
'marrellomorphs,' and a problematical form that could have been pilfered from the Burgess Shale and mislabeled (that is, if it weren't pyritized, because we don't see that in the Burgess Shale).

The trilobites are represented by a number of phacopids including specimens with glistening biramous appendages, and a dalmanitid that reaches 23 cm in length. Several kinds of crustaceans are present, including spectacular phyllocarids. Surprisingly, there is even a beast that looks a lot like our Cambrian friend *Anomalocaris*. Lest vertebrate fans feel left out, there are two complete specimens of fish, as representatives of some ten species.

The book on the Hunsrückschiefer is not closed of course. No doubt more specimens will come to light that will add to what is known about morphology, paleobiology and paleoecology.

Puzzles are evident: how to explain the occurrence of the tentaculitids? What made the coprolites? Who bit the trilobite? How typical is the fauna? Corals occur, but why no bryozoans? That bunch of trilobites, why did they get transported together?

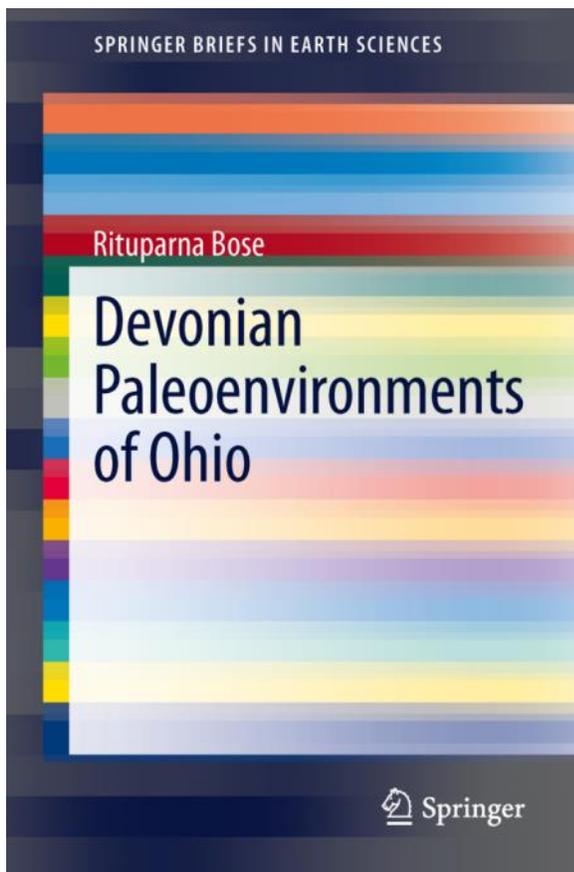
The text is translated by the authors from the German edition published also in 2012, and it reads well, the language easily comprehensible to the educated, English-speaking lay public, including young adults who may have caught the paleo bug. The text and figure captions describe the



photographed specimens and typically tell a little story such as how the animal lived or wound up preserved. There is a brief bibliography. The final page shows four scientific authors and two professional photographers, all looking pleased with themselves, and so they should. Books like this appeal to me for several reasons. First, of course there is good teaching material here. Second, with the deluge of scientific papers available now only electronically, we are

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unable to engage in the random browsing that we used to do, discovering new things serendipitously. The Hunsrückschiefer is an Aladdin's Cave of fossil wonders, and a testament to the diligence and dedication of the people willing to bring them to light.



**Bose, R. 2013. *Devonian Paleoenvironments of Ohio*. SpringerBriefs in Earth Sciences Series. Springer, Heidelberg, Germany, 57 pp. (\$49.95 paper, \$39.95 e-book.)**

**Reviewed by Stephen K. Donovan (Naturalis Biodiversity Center, Leiden, The Netherlands)**

I was captivated by the title of this book, *Devonian Paleoenvironments of Ohio*. This was a book for this recent migrant to Devonian paleontology to sink his teeth into! And then, to be Wodehousian, reality slipped the lead pipe into the boxing glove of life. This expansive title hides only a limited achievement. The meat of the book does not con-

cern all of the Devonian, as promised, but just the Middle Devonian Dundee Formation. Even then, it is not even concerned with all of the Dundee Formation, which extends into southwestern Ontario, but just that part exposed in Whitehouse Quarry in Lucas County, Ohio. Although this formation has yielded a diverse shelly biota (p. 20), this book concentrates on the brachiopods from part of the section only 0.32 m thick. This yielded 245 brachiopod specimens to the author; only one taxon, *Rhipidomella* (48 shells, about a fifth of the collection), preserves evidence of interactions with other organisms and then on less than half this number of shells. Thus, *Devonian Paleoenvironments of Ohio* is principally concerned with the trace fossils and encrusters of just 21 shells, with some notes on burrows. This sparse data is thrown into stark contrast in the conclusion; "... 582 out of 586 specimens of *Paraspirifer bownockeri* from the Middle Devonian Silica Formation of Ohio [was] encrusted" (p. 55). So, there are superior sources of palaeoecological data to be found in the Devonian of Ohio, but they are published elsewhere. So much of the potential field covered by the promising title *Devonian Paleoenvironments of Ohio* is left unsaid and ignored or just hinted at. It is an uninspiring treatment whose title promises so much more than is delivered. I feel short-changed and very disappointed. And most of the meat has been published previously (see p. v) as a research paper.

The structure of *Devonian Paleoenvironments of Ohio* is peculiar. It reads like a thesis and has been adapted from one, surely. There is even a one-page chapter entitled 'research goals', worthy in a thesis, but surely irrelevant here. A number of diagrams are directly lifted from the published scientific literature, but there is no indication that permission has been granted for their reproduction herein. Photographs new to this volume are no more than acceptable. Each chapter has its own reference list, which leads to one reference being listed five times, although not always in exactly the same format. The order of references at the end of Chapter 5 is random, not alphabetical. There is no index.

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I make no general recommendation for *Devonian Paleoenvironments of Ohio*. It is only the rare specialist who might need this volume. It is not the general introduction that the title suggests and adds little to the subject that is new.

### AUSTRALIA'S Fossil Heritage

A Catalogue of Important Australian Fossil Sites



The Australian Heritage Council

**Australian Heritage Council. 2012. *Australia's Fossil Heritage: A Catalogue of Important Australian Fossil Sites*. CSIRO Publishing, Collingwood, Victoria, Australia, 188 pp. (\$62.95 paper, \$35.95 e-book.)**

**Reviewed by Carl Mehling (American Museum of Natural History, NY)**

*Australia's Fossil Heritage: A Catalogue of Important Australian Fossil Sites*, produced by The Australian Heritage Council, offers an overview of outstanding paleontological resources of Oz, where "outstanding" describes sites that caused fundamental shifts in paleontological thinking, illustrate incredible diversity in time or space, or exhibit extraordinary preservation. Lagerstätten from elsewhere in the world have been described in greater detail so this book is a treasure trove for those looking for a more global view

of the richest fossil sites.

For each site a report was provided by an expert in that field and the reports are arranged in the body of the book geographically. Each report consists of several subheadings: scientific importance and research potential, fossil significance, taphonomy and site condition, comparison with other sites, stories and dioramic potential, and key references. Sprinkled throughout the book are photos of iconic fossils or their sites plus a few beautiful restorations by Peter Schouten. A useful appendix at the end groups sites by type and is followed by a timeline, glossary, and references.

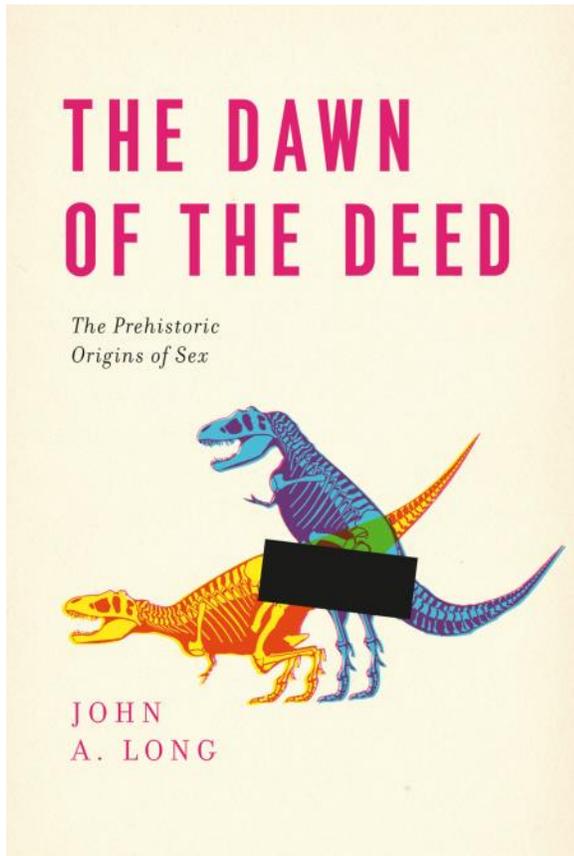
Fossils spotlighted include, of course, vertebrates and invertebrates from well-known sites like the Ediacara sites, Gogo, Riversleigh, etc., but, refreshingly, trace fossils and plants are also showcased—groups that are commonly missed in treatments like this.

Unfortunately, the subheadings are nebulous, and because they were written by various authors who clearly interpreted what was sought differently, the result is so variable that it is very hard to make comparisons between entries and thus sites. For example, the Site Overview for Bacchus Marsh is a single sentence about the location of the site, whereas the Site Overview for Fletcherview is six full paragraphs describing location, geography, paleontology, stratigraphy, paleoecology, history, etc. In the section on Rewan, the same basic sentence appeared in four out of the five sections. Some site entries were even missing sections, adding to the difficulty of comparing sites.

The book clearly would have benefited from a more unambiguous idea of what was wanted from each author and a final edit that would have brought all the elements into a consistent theme. And I admit that by the end of the book I had no good idea what "dioramic potential" referred to, so I figured it must be a term more commonly used Down Under. And since the book introduces so many unfamiliar sites to the rest of the world, many more photos and restorations would have been welcome.

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All that said, I would still highly recommend *Australia's Fossil Heritage*. It fills a gap for anyone interested in the diversity in the fossil record and is very welcome and exciting for that alone.



**Long, J.A. 2012. *The Dawn of the Deed: The Prehistoric Origins of Sex*. University of Chicago Press, Chicago, IL, 296 pp. (\$18.20 cloth, \$11.90 paper, \$12.60 e-book with 30% PS discount.)**

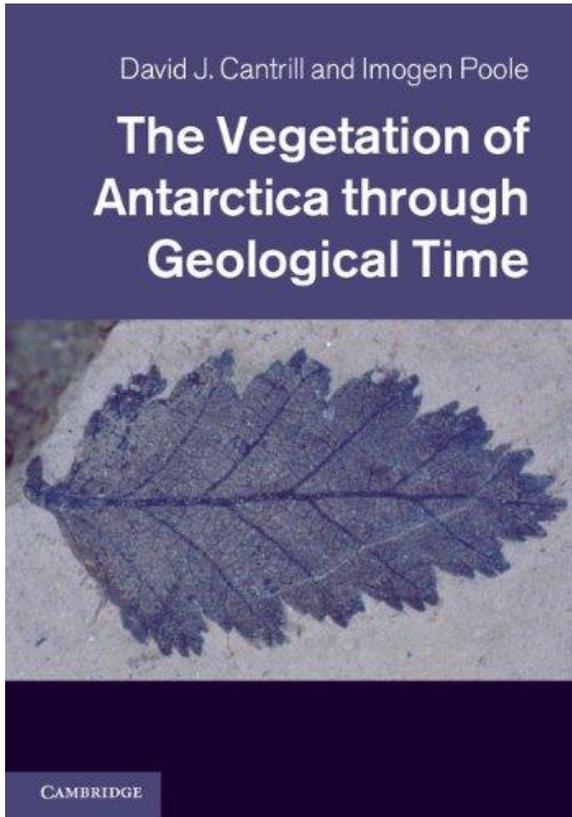
**Reviewed by Mike Meyer (Western Carolina University)**

Sex and death are two seminal aspects of the evolutionary process, and while the investigation of death gets an abundance of invigorating investigation in paleontology, the origin, development, and types of sexual behavior (particularly in vertebrates) is often neglected. *The Dawn of the Deed* tries to rectify this by penetrating the void in

our understanding of ancient sexual behavior (both animal and human). Given some of the subjects the author covers, such as why males should be complimented by an anatomical duck analogy in the bedroom, the book is easy and fun to read without being too cheeky, but with a good sense of humor. Given my enjoyment reading it, I would have liked the book to be longer, at fewer than 300 pages I thought the end came too soon. The book begins wooing the reader in the table of contents with inventive chapter titles such as: “The Ptyctodontid Kind of Congress”, “Down and Dirty in the Devonian”, and “Sex and the Single Ostracod”. The chapter title (and the chapter itself) that makes reference to the Bloodhound Gang’s song “The Bad Touch” was my favorite by far.

One of the ways the author keeps the reader interested is that the book is really two tales intimately intertwined. The first is an autobiographical account of the discovery of the oldest evidence for live birth (and its other associated ‘bits’) while the other is the titillating grand tale of how we and our ancestors do/did the deed. Though I enjoyed the autobiographical tract, it is aimed toward a lay audience in that the author describes a lot of the basics of the scientific process and how research is conducted. I firmly agree with the author that this sort of information is important to convey to the public so they have a better understanding of science in general and of what we as scientists do (especially paleontologists), but for active researchers these few parts can be tedious. The grand tale of how Devonian sex organs gave rise to our own is one of the most interesting aspects of the book in that it covers a wide girth of subjects, from the function of shark claspers, to the rather terrify mating habits of ducks, or that bedbugs are even worse lovers than bedmates. The male bed bug mates through the process of ‘traumatic insemination’ in which he stabs the female with his ‘phallus’ and ejaculates directly into her body. Romantic. Overall, while possibly the only piece of scientific literature you may glance to your sides while reading in public, this book is a fun read for anyone seduced by Earth and life sciences.

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Cantrill, D. J. and I. Poole. 2012. *The Vegetation of Antarctica through Geological Time*. Cambridge University Press, Cambridge, UK, 480 pp. (\$140 cloth.)

Reviewed by James E. Mickle (North Carolina State University)

Until about 1980, Antarctic paleobotany was somewhat of a hit-or-miss affair. To be sure, fossil collections had been made, numerous studies had been published, including excellent syntheses, and thus the presence of plant fossils was well established before that time. However, since that time, the rate of study and number of publications on Antarctic paleobotany and paleobiology have increased greatly. This rich history and recent burgeoning of knowledge about the Antarctic paleoflora is handled exceptionally well in Cantrill and Poole's volume on Antarctic paleobotany. This book is quite well written, extremely well organized, and is very comprehensive in its coverage of the topic. Chapter 1 is a historical background of paleobotanical studies in Antarc-

tica and gives the geological framework that underpins the remainder of the book. The remaining eight chapters work up the geological column from early Paleozoic to the Pliocene. Each chapter is adequately, but not profusely, illustrated with maps and photographs, and is supplied with a summary. Literature cited is listed at the end of each chapter (as opposed to being combined at the end of the book), making reference checking and follow-up far easier. Each chapter does an admirable job of integrating geological, paleogeographical, paleoclimatological and paleobotanical information on the various geological ages, and the authors are careful to place Antarctica in context of Gondwana and, to a lesser extent, worldwide paleofloras. Palynological evidence is strongly woven into the narrative as well, completing the historical picture of Antarctic floras. One feature of the volume that is somewhat unusual for a book of this type but very appealing is that case studies are included. Two examples are case studies of the Permian genus *Dicroidium* and the Late Santonian (Cretaceous) Table Nunatuk flora. These case studies look in depth, using multiple references, at these topics, describing the plants and their inferred environments in detail. This is a nice addition to the general tone of the book, which is paleofloral. The case studies allow the reader to see descriptions in greater detail of the fossil plants discussed in the text, placing the floras in a stronger botanical context. Having said this, Cantrill and Poole's book is not a taxonomic volume. While fossils are highlighted and discussed, no new descriptions of fossils are given in this work—it is strictly about interpreting the paleovegetation of Antarctica and its context. As presented, this volume serves as a thorough review of Antarctic vegetation through geological time. Equally, the presence of the chapter summaries and case studies make this a very good choice as a textbook for a specialized course on Gondwanan and/or Antarctic paleontology or a supplemental textbook for a more generalized course. Anyone interested in and especially those teaching paleobotany, paleoecology, paleoclimatology, vegetational history or biogeography should definitely have this integrative book on their shelf and available to their students.

## BOOK REVIEWS

**Bender, M. L. 2013. *Paleoclimate*. Princeton Primers in Climate Series. Princeton University Press, Princeton, NJ, 309 pp. (\$64 cloth, \$22.36 paper with 20% PS discount.)**

**Reviewed by Ellen Thomas (Geology & Geophysics, Yale University).**

*Paleoclimate* is a volume in "Princeton Primers in Climate", according to the publisher a "series of short, authoritative books that explain the state of the art in climate–science research". This concise volume uses fewer than 300 pages (40 B/W figures) to place anthropogenic warming within the long-term, geological context. The book's structure works well intuitively, with an introductory chapter on the workings of Earth's climate followed by travel through time: the origin of the solar system, then Precambrian glaciations, followed by discussion of long-term, Phanerozoic regulation of climate through linkages with the carbon cycle and geochemical modeling to reconstruct atmospheric CO<sub>2</sub> levels. We visit Late Paleozoic Ice ages, Cretaceous–Paleogene warm climates, the Paleocene/Eocene Thermal maximum, long-term Cenozoic cooling, Pleistocene northern hemispheric glaciation, climate variability during the last glacial interval, Holocene climate, and end with anthropogenic global warming. More detailed information is presented on the youngest periods in Earth history, on which the author is a globally recognized expert. The author does not go exhaustively through basic principles, and does not present a complete climate history: he effectively uses examples to illustrate and explain dramatic past climate change, while describing the tools of reconstructing past climate as the need for them comes up naturally in the discourse.

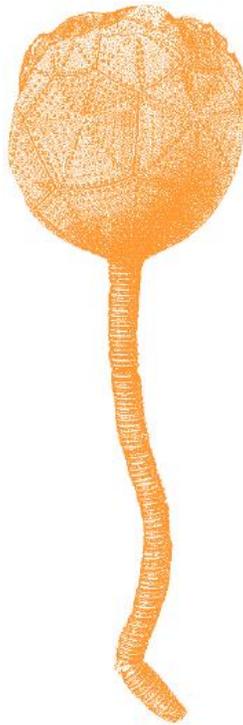
This book is not written for paleontologists: organisms are actors in biogeochemical cycles and makers of compounds to be analyzed. But it complements and gives background for what paleontologists do, and many of us may find it

useful. What puzzles me somewhat is the book's intended audience. The preface calls it a "broad introduction to the subject for a scientifically literate audience, a reference for information about specific topics in the field, and a textbook for courses in climate and paleoclimate." The text assumes considerable knowledge about physical aspects of the climate system, while assuming very little knowledge about some other topics, e.g., what an isotope is (box 1). I like it as a "reference for information about specific topics in the field", giving up-to-date reading and references about paleoclimatic topics, thus useful for lecture preparation. It

may be a good textbook for students familiar with climatology and oceanography, but not with Earth history. I do not think it would work as a textbook for an undergraduate class of non-science majors or lower-level undergraduate students because the introductory chapter is too concise for students without prior college-level knowledge of the climate system.

Some things irritated me. I read the following repeatedly (p. 16): "Waters thus 'dome' in the center of the ocean basins, exerting a pressure gradient leading to a circular or 'gyre' flow. These waters circulate in a **counterclockwise** direction in the Northern Hemisphere and clockwise in the Southern hemisphere". But this is wrong: the North Atlantic gyre incorporating the Gulfstream rotates clockwise. Minor error, but students have a hard time following why things rotate how, thus this is irksome. Then

there is the Paleocene-Eocene Thermal maximum, a focus of my research, so that I am nitpicky about. It is quite a good chapter, but cites authors of a seminal paper incorrectly through inserting later insights, which I am always telling my students not to do. Kennett and Stott 1991 (p. 126) "... found large transient decreases in  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  in Foraminifera skeletons at the Paleocene-Eocene boundary. The  $\delta^{18}\text{O}$  decrease signaled a warming of about 5°C, while the  $\delta^{13}\text{C}$  decrease signified the addition of a large amount of



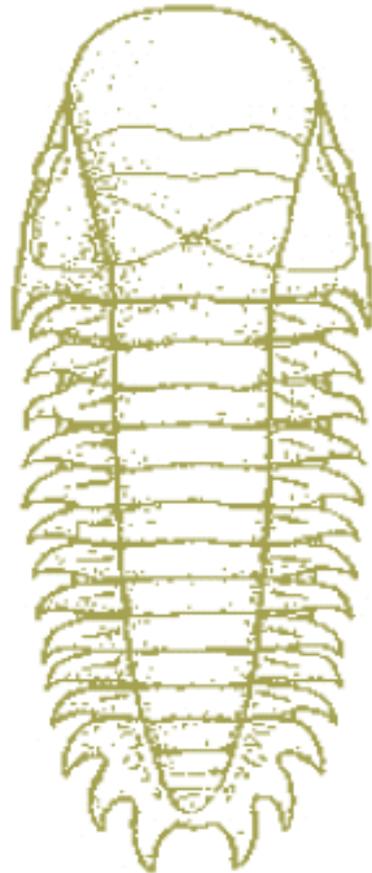
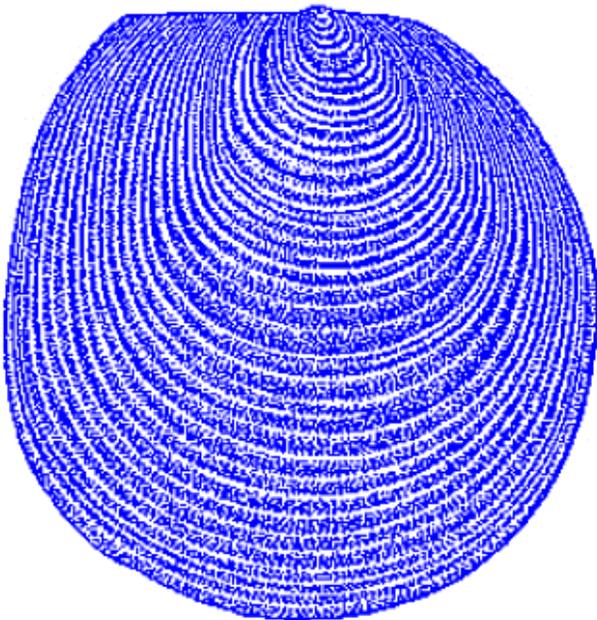
## BOOK REVIEWS

biological CO<sub>2</sub> to the oceans." This is true in hindsight only: these authors did not argue for addition of isotopically light carbon to explain the warming, which was proposed in 1995 (Dickens et al.; Matsumoto). Here is a missed opportunity to discuss how scientific hypotheses are part of society: in 1991, global warming due to fossil fuel burning was not as much in the news as today, and it took years for the scientific community to realize the analog with past geological events. When the time was there, people in different countries made that connection independently.

I liked the last chapter on anthropogenic climate change, explaining clearly that climate change *per se* is not "injurious to our planet." Climate has dramatically changed in the past, and it is our society and institutions, not our planet, that will suffer from the fast rates of climate change caused by our own actions, and illuminated by the geological record of climate change and its effects on biota.

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## BOOKS AVAILABLE FOR REVIEW

The following volumes are available to Paleontological Society members in exchange for writing a review for *Priscum*. Reviews should be informative, engaging, and 400–800 words long. The tone can be informal and casual, appropriate to recommending or critiquing a book to friendly colleagues. (Longer reviews are allowed, but please request ahead of time.) Reviews should be submitted by May 1 for inclusion in the Spring/Summer issue or Dec. 1 for inclusion in the Winter issue. Reviewers must be a current member of the Paleontological Society before beginning review. If interested in reviewing one of these volumes, please contact book review editor Phil Novack-Gottshall ([pnovack-gottshall@ben.edu](mailto:pnovack-gottshall@ben.edu)). Reviews will be assigned on a first-claimed basis to individuals with appropriate knowledge and experience with book content.

Arthur, W. 2011. *Evolution: A Developmental Approach*. Wiley-Blackwell.

Bose, R. 2013. *Palaeobiology of Middle Paleozoic Marine Brachiopods: A Case Study of Extinct Organisms in Classical Paleontology*. SpringerBriefs in Earth Sciences. Springer.

Bose, R., and A. Bartholomew, 2013. *Macroevolution in Deep Time*. SpringerBriefs in Evolutionary Biology. Springer.

Coram, R. & Jepson, J.E. (2012) Fossil insects of the Purbeck Formation of Southern England: palaeoentomology from the dawn of the Cretaceous, 144 pp. Monograph Series, Volume 3. Siri Scientific Press, Manchester.

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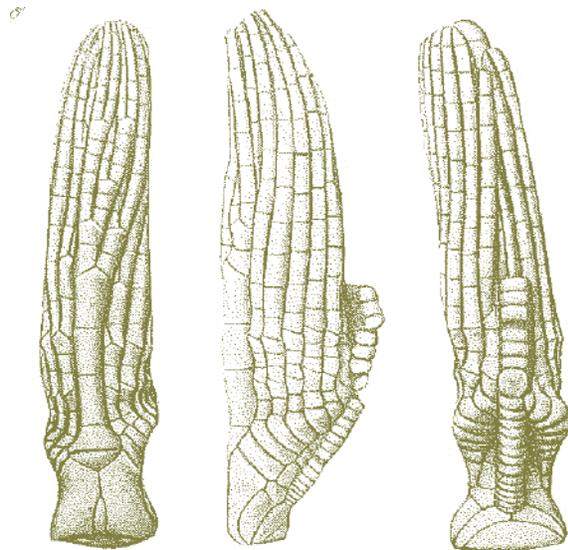
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### Note to book publishers

Would you like to have your book reviewed by knowledgeable paleontologists interested in promoting the best new books on paleontology, evolutionary biology, ecology, sedimentary geology, and the earth sciences? Would you like your books' reviews to be viewed by more than 1,600 professional and avocational paleontologists? Then contact Book Editor Phil Novack-Gottshall ([pnovack-gottshall@ben.edu](mailto:pnovack-gottshall@ben.edu)) or send review copies to Department of Biological Sciences, Benedictine University, 5700 College Road, Lisle, IL 60532.

# CONGRATULATIONS!

## 2013 PS MEDAL AWARDEES



**PS Medalist**  
*Estella Leopold*  
(University of Washington)



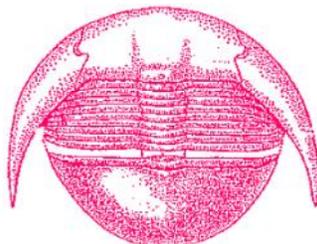
**Schuchert Award**  
*Bridget Wade*  
(University College, London)



**Strimple Award**  
*Antonio De Angeli*  
(Vicenza, Italy)



**Pojeta Award**  
*John and Mary Lou  
Pojeta*  
(USGS/Smithsonian)



## THANK YOU FOR YOUR SERVICE TO THE PALEONTOLOGICAL SOCIETY!

It takes many people to make our Society work! Many thanks to those who have served on various *ad-hoc* Society committees. If you would like to volunteer to help the Society, please contact the Committee Chair or any Society Officers.

PS Communications: Leif Tapanila (Communications officer and webmaster), Phoebe Cohen (Social Media editor), Matthew Powell (Priscum editor)

PS Student Research Grant proposal reviewers: Marc LaFlamme (Chair), Matthew Powell (Outgoing chair), Diana Boyer, Kate Bulinski, Edward Davis, Jocelyn Sessa, Celli Hull, Pedro Marenco, and Jim Schiffbauer

Joint Technical Program Committee: Tom Olszewski (Program Coordinator) Seth Finnegan, Phoebe Cohen

PS Education and Outreach Committee: Peg Yacobucci (Education Coordinator), Danita Brandt, Phoebe Cohen, Sean Cornell, Dave Goldsmith, Alan Goldstein, Talia Karim, Joanne Kluessendorf, Steve Schellenberg, Judy Scotchmoor, Dena Smith, Dale Springer, Leif Tapanila (outgoing)

PalSIRP Grant Committee: Ronald Parsley (Chair), Carrie Schweitzer, George Stanley, and Colin Sumrall

Nominations Committee: Scott Wing (Chair), David Fox (incoming chair), Danita Brandt, Claudia Johnson, Dan Peppe, and Susan Richardson; outgoing: Steve Rowland and Peg Yacobucci

PS Fellows Committee: Roger Thomas (Chair)

PS Medal Committee: Philip Gingerich (Chair), Laurie Anderson, Dana Geary, Susan Goldstein, Herb Meyer, Kevin Peterson, David Polly. Outgoing: Dick Bambach and Bob Gastaldo.

Schuchert Committee: Philip Gingerich (Chair), Tom Baumiller, Laurel Collins, James Doyle, Mary Droser, David Fastovsky, Paul Koch; outgoing: Robert Carroll and Shuhai Xiao

Strimple Committee: Steven Holland (Chair), Kevin Boyce, Pamela Hallock Muller, Carrie Schweitzer, and Mark Uhen; outgoing: Ken Angielczyk and Paula Noble

Auditing Committee: Greg Dietl, Michael Foote

## THANKS TO THE ASSOCIATE EDITORS OF THE JOURNAL OF PALEONTOLOGY

Jason Anderson (University of Calgary)

Laurie Anderson (SD School of Mines & Technology)

Thomasz Baumiller (University of Michigan)

Bill Dimichele (Smithsonian Institution)

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David Varricchio (Montana State University)

Peter Wagner (Smithsonian Institution)

Steve Westrop (Oklahoma Museum)

Michael Woodburne (Univ. of California, Riverside)

David Work (Maine State Museum)

### Thanks to GSA Session Chairs!

Thank you to everyone who served as session chairs for GSA 2012: Melanie J. Hopkins, Noel A. Heim, Carl Simpson, Gene Hunt, Lauren G. Shoemaker, Paul G. Harnik, Emily Haddad, Conrad C. Labandeira, Melissa Light Schroeder, Richard Waite, Tracy J. Thomson, William C. Clyde, and Lauren Berg DeBey.

## UPCOMING EVENTS AND DEADLINES

### Stratigraphic Paleontology Field Course

Application deadline: March 15, 2014

### PS Student Research Grants

Feb. 24, 2014

### PS Education and Outreach Grant

Mar. 28, 2014

### PalSIRP/Sepkoski Grants

Apr. 1, 2014

### Association of Applied Paleontological Sciences

Check <http://www.aaps.net/aaps-grants.htm> for details on individual grants and deadlines

### 2014 GSA sectional meetings

Northeastern: Lancaster, PA, March 23–25

Southeastern: Blacksburg, VA, April 10–11

North-Central: Lincoln, NE, April 24–25

South-Central: Fayetteville, AR, March 17–18

Rocky Mountain & Cordilleran Joint Meeting: Bozeman, MT May 19–21

### 2014 GSA Annual Meeting

October 19–22, Vancouver, British Columbia, Canada

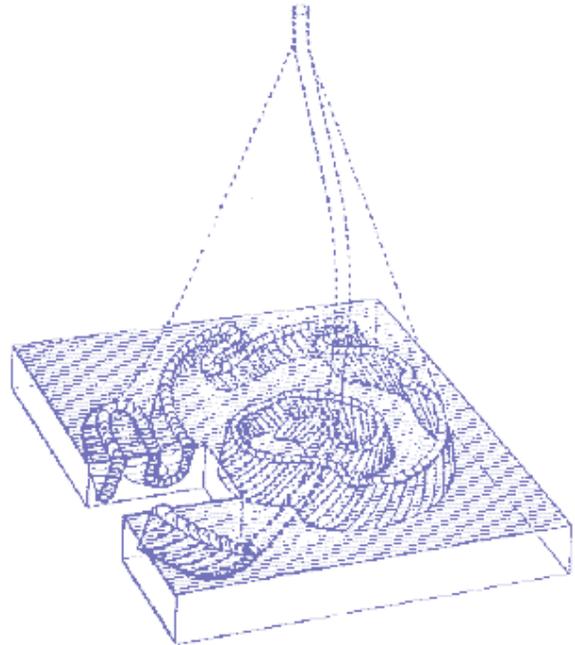
Details to come in April, 2014

### Future GSA annual meetings

2015 - Baltimore, MD: November 1–4

### North American Paleontological Convention (NAPC)

2014 - Gainesville, FL: February 15–18



## Current Paleontological Society Officers

**President:** Sandra Carlson

**President-Elect:** Steven Holland

**Past-President:** Philip D. Gingerich

**Secretary:** Mark A. Wilson

**Treasurer:** Peter Harries

**Councilor (Unrestricted):** Peter Wilf

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**Co-Editors, *Paleobiology*:** Bruce MacFadden, Douglas Jones, Jonathan Bloch, & Michał Kowalewski

**Communications Officer:** Leif Tapanila

**Editor, Social Media:** Phoebe Cohen

**Editor, *Priscum*:** Matthew Powell

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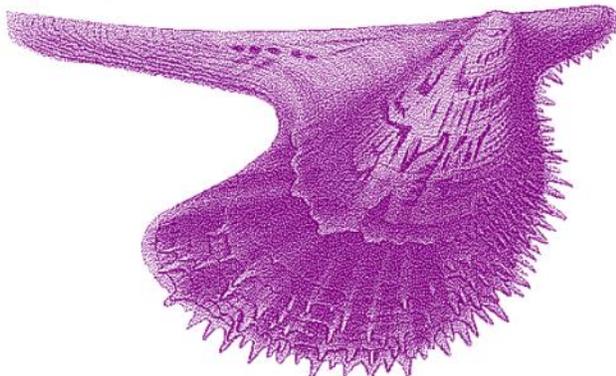
**Southeastern:** Gwen M. Daley

**North-Central:** Rebecca Freeman

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**Rocky Mountain:** Leif Tapanila

**Cordilleran:** Nicole Bonuso



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Newsletter of the  
Paleontological Society

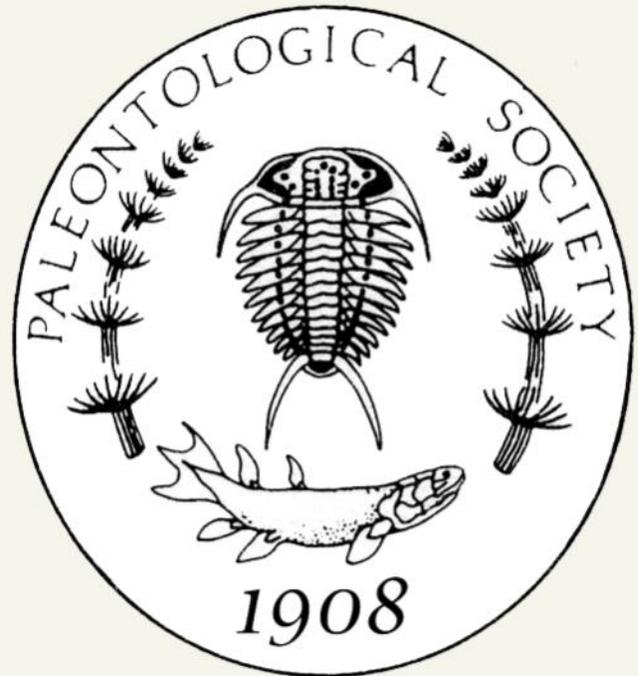
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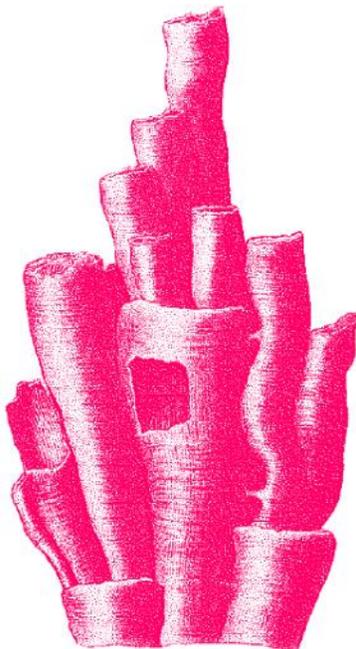
[powell@juniata.edu](mailto:powell@juniata.edu)

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## IDEAS FOR *PRISCUM* CONTENT?



Do you have any ideas for content for the *Priscum* newsletter? If so, please contact Phil Novack-Gottshall ([pnovack-gottshall@ben.edu](mailto:pnovack-gottshall@ben.edu)). We are interested in including a wide range of content of possible interest to members of our Society. Consider anything from a short description of a future GSA symposium or field trip you are planning to an op-ed sharing a cantankerous viewpoint on a topical issue, an idea for a regular *Priscum* feature, or memorable photos of fossils or fieldwork.