



Priscum

NEWSLETTER OF THE
PALEONTOLOGICAL
SOCIETY

**SPECIAL
POINTS OF
INTEREST:**

- Role of women in paleontology
- Book reviews
- In memoriam
- Call for PS nominations
- News from *Paleobiology* editors
- PalSIRP/Sepkoski awardees and grant announcement
- Outstanding Student Poster awardees
- PS Medal, Schuchert, and Strimple Awardees
- Thanks to those who have served the Society

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Women in Paleontology: Where are they?

By Alicia Stigall (Ohio University)
Councilor-at-Large

My role as Councilor of the Paleontological Society is to oversee membership for the society. This job has many fun aspects, including ordering GSA give-a-ways, proposing membership initiatives and number crunching. Unfortunately, **as a society, we have very sparse membership records** which limit the types of data I can crunch. We have addresses and emails, but that is effectively all. We have no direct data on gender, ethnicity, or discipline distribution among our members. We have no data about the amount of time members have belonged to the society. To better serve you, we will be **deploying an online survey in the next few months** to try and capture some of this missing data.

Please participate! Sharing a few minutes of your time will provide a clearer picture of our members and help us to tailor PS initiatives to better serve you.

Although we have few data, one trend is striking and compelling: **Women are underrepresented in our Society.**

Women in the PS: The current state of affairs

Certainly, all of us are aware of the historic and ongoing gender bias in science in general, and geology in particular. I had always considered paleontology to be among the more equitable disciplines in geology, at least I did before I looked at our membership. Because we lack direct data, I coded our members based on my understanding of the typical gender associated with their first names. Certainly, there are errors in this data—and I excluded many Asian members because I was unsure about their names, but the overall pattern is clear: **Only ~23% of Paleo Society members are women** (Fig. 1). Going back into PS Council minutes, this is not new: the same approximate gender gap existed in 2004.

Maybe my impression of our field was wrong. Maybe women actually do comprise less than 1/4 of the paleontological community? To test this, I tabulated the approximate gender ratio for presentations in all 89 paleontology sessions held at that GSA Annual Meetings in 2010-2012. Overall, **women were the lead author on 37% of the presentations.** So clearly, there ARE more women in paleontology. Why are they not members of our society?

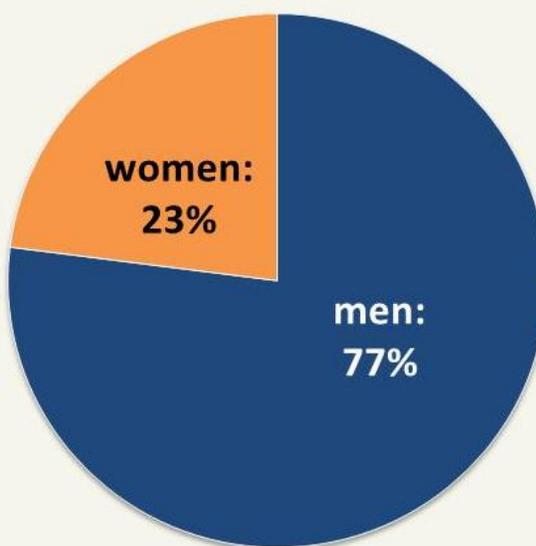


Fig. 1. Gender disparity among members of the Paleontological Society.

WOMEN IN PALEONTOLOGY: WHERE ARE THEY?

Is this gender gap due to historical bias, with roots in fewer women scientists in earlier decades? Yes, in part. **The percentage of women in the PS declines with more advanced professional status.** Women comprise 42% of students, 17% of professionals, 11% of retirees, and 8% of emeritus members. But historical bias alone cannot explain the substantial drop-off between students and professionals. Female members show a 1:1 ratio between professionals and students, whereas men have a 3:1 ratio (Fig. 2). There clearly are many female student members, but this does not translate into many professional women in the society. Possible explanations for this drop include: (1) female students are not becoming professional paleontologists or (2) professional women are not joining the society. Both of these present challenges that we should consider as a society.

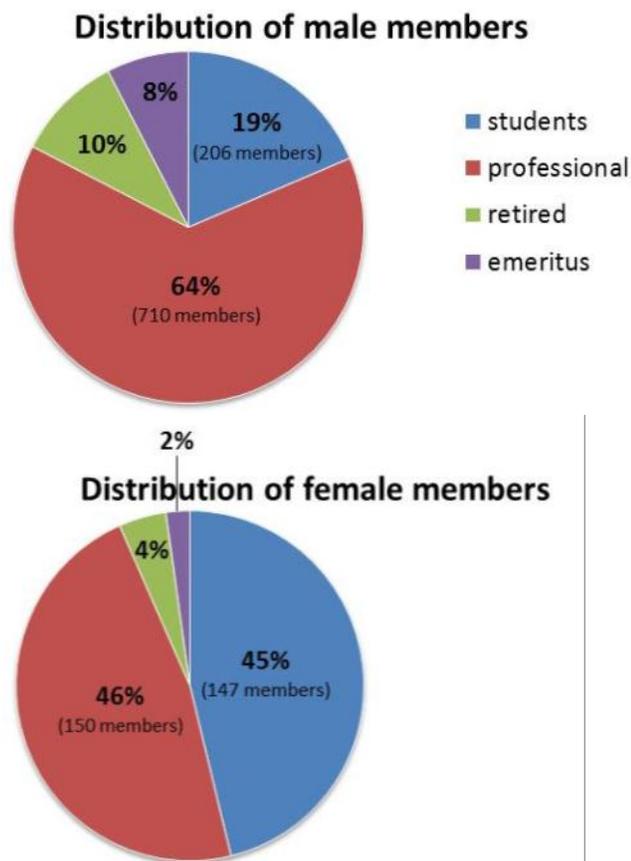


Fig. 2. Status of members of the Paleontological Society, by gender.

It has been **suggested to me that the lack of recognition of women by the society has cost us potential or former members.** Some have perceived the society as a “guys club”. Are there data to support that impression? Yes, in part. Some of the key roles in the society (journal editors, president, secretary, and treasurer) have been held by male members almost exclusively. However, ALL of the other council offices have been held equitably since the 1980s. In fact, **women serve on PS Council at a higher frequency than their percentage of membership in the society.** Clearly women are tremendously important in the organization of the Paleontological Society. And Council has long recognized the need for equitable participation, actively recruits women members for volunteer committee assignments, and encourages the Joint Technical Program Committee to invite one male and one female member to chair disciplinary sessions at GSA.

But what about society awards? **Only 8% of Schuchert Awardees, 4% of PS Medalists, and zero individual Strimple awardees have been women.** Those values are beneath every single category of membership. This disconnect indicates that **women are not being recognized proportionally to their participation in the society.** Why are so few women earning recognition for scientific excellence in our society? Are there really so few outstanding women in our science? Of course not! There have been MANY outstanding female paleontologists since Mary Droser was awarded the Schuchert Award in 1997 or Helen Tappan won the PS Medal in 1984. Our outstanding women members should be awarded alongside our outstanding men.

Challenges

Three key challenges face our society related to gender equity: (1) improving the number of female members, (2) improving participation by women in core leadership roles, and (3) improving recognition of outstanding women. Women appear to be equitably represented among student members, but we are losing members between the student and professional stages. It is possible that improving points 2 and 3 will improve our retention of these paleontologists as members, but additional strategies such as mentoring of junior professionals should also be explored.

The lack of recognition and core leadership participation by women has been noted in many disciplines, and is not

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unique to our society. Others have considered the relative reticence of women for self-promotion and a similar lack of promotion of women by male colleagues (Isbell et al. 2012, PLoS ONE). In order for women to earn society awards or be elected to high office, they must first be nominated—either by themselves or others. While difficult to assess this particular point, some data that support reticence of women in paleontology is the distribution of oral vs. poster presentations at GSA. Of the 89 paleontological sessions over the past three GSAs, women presented a statistically higher percentage of posters than oral presentations ($p=0.06$), a medium that is certainly less visible and often considered less prestigious at our meetings. This trend has also been documented among evolutionary biologists. In the current edition of *TREE*, Cameron et al. (2013) describe the compounding impacts of lower self-confidence of women in science (Fig. 3). The intertwining factors that reinforce lower levels of self-confidence among female scientists certainly contribute to the reduced visibility of female members among our executive officers and awardees.

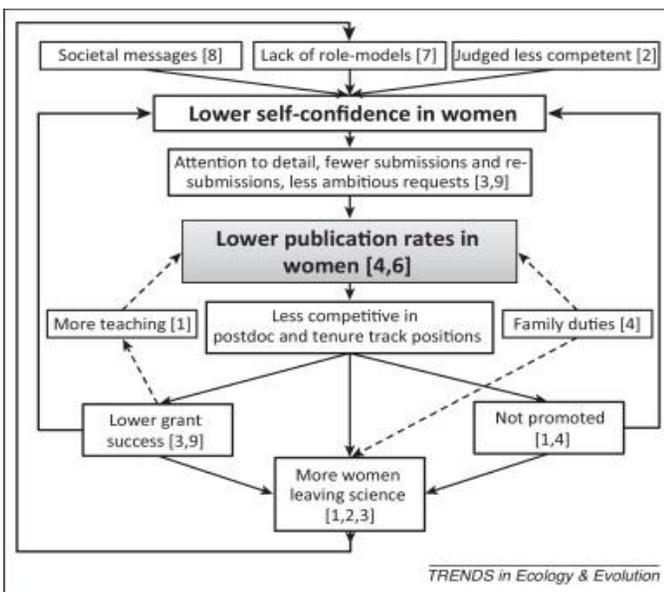


Fig. 3. Inter-relationships between the experience of science, low scientific self-confidence, and low publication rates contributing to the attrition of women from academia. Reprinted from Cameron, et al. (2013), with permission from Elsevier.

Opportunities!

The first step in tackling a problem is to recognize that it exists. Having done that, the PS has a bright future. Consider our current female student members; they are the fu-

ture women of paleontology. Since 2007, women have been awarded 53% of the Student Research Grants.

As noted above, there are many women presenting excellent research at our annual meeting. The percentage of women presenting paleontology research at GSA (37% for 2010–2012) is already higher than the comparable annual meeting of the Palaeontological Association (31% in 2011), as is the percentage of women presenting oral presentations (34% vs. 26%). We need to find ways to persuade these women to join and retain their membership in the Paleontological Society.

Recommendations: Concrete steps to take

Societies are strengthened by incorporating diversity (of gender, of ethnicity, of abilities, of ideas, and of disciplines). As a society, we need to be aware of equity issues and take intentional steps to counteract imbalances. The recommendations below relate to increasing ALL types of diversity. So far, we have data on gender equity, but there are many other types of diversity we should work to improve. This set of recommendations applies to all of them.

Intentional nominations. Think about the excellent female colleagues you have. Now nominate at least one of them for a leadership position (we have several open this year!) or a society award. All Society positions are open nominations, so please share your ideas!

Mentoring. Establish professional relationships with young women in paleontology (students and early career professionals). Spend some extra time at poster sessions meeting some of our student members. Encourage women to submit abstracts for oral presentations. Established women, share your career stories and experiences.

New initiatives. PS Council is dedicated to increasing equity for all types of diversity in our membership. Please share any ideas you may have for initiatives with me (stigall@ohio.edu) or other council members—now and in the future. ↗

Works Cited

- Cameron, E.Z., M.E. Gray, and A.M. White. 2013. Is publication rate an equal opportunity metric? *Trends in Ecology & Evolution* 28(1): 7–8.
- Isbell, L.A., T.P. Young, and A.H. Harcourt. 2012. Stag parties linger: continued gender bias in a female-rich scientific discipline. *PLoS ONE* 7(11): e49682.

PRESIDENT'S ADDRESS: PALEONTOLOGIST BARBIE

By Sandra J. Carlson (University of California, Davis) PS President

I remember having mixed feelings about her, from the beginning. I was happy that, of all the scientists to be recognized in the “Barbie I Can Be . . .” Career Collection, Paleontologist Barbie (Fig. 1) was chosen in 1996 as the second in the Science and Engineering category, behind Astronaut Barbie—a hard career choice to beat, given the remarkable successes of Sally Ride and Kathryn Sullivan. And Paleontologist Barbie was packaged with dinosaurs (no brachiopods in sight), along with her sensible field boots (after all, high heels would get stuck in the mud) and pink canteen (doesn't everyone have one?) What's not to like? But Barbie as my role model? That 1950's paragon of female beauty and fashion? Really???

Gender identity is something that I honestly don't think about all that much. And yet, it is important that gender be acknowledged, along with all the other qualities that we each possess, because it is an inextricable part of who we are and how we define ourselves. I am fortunate that one-third of the faculty in my department are women, a large number for a geology department. I think that each of my colleagues, female or male, would like to be thought of first as a good human being, then as a good scientist, and perhaps next as a good woman or man who happens to also be a good scientist and human being. Gender needn't be the central focus of our daily lives, but neither can it nor should it be ignored.

This past election year was particularly embarrassing for public gaffes about many things affecting women, including our reproductive physiology, intellectual capacity, and overall status in the species. There were the “binders full of women,” along with quotes by Todd Akin and Richard Mourdock that I'm sure you remember all too clearly. And beyond gender, a major focus in our chosen field of paleontology—evolution—is considered by some to be one of the “lies straight from the pit of hell” (Rep. Paul Broun, Oct. 2012), along with embryology and the Big Bang theory. Our job as paleontologists, both women and men, is very



Fig. 1. Paleontology Barbie. BARBIE and associated trademarks and trade dress are owned by, and used under permission from, Mattel, Inc. © 2013 Mattel, Inc. All Rights Reserved.

clear—we must do a better job of educating the public about what we do and what we study and what we know. We need the insights and intellect of every qualified woman and man to accomplish this important task.

I think that each one of us, not just the politicians, carries a host of biases, usually unwittingly. This is true when it comes to gender bias in PS membership, leadership, and award nominations. I spend a fair bit of time in my upper division paleontology course talking about biases in the fossil record because I think it is important to acknowledge that they exist, and then predict the effects that they might have on the record itself. If the goal is to interpret the rock and fossil record in our search for macroevolutionary patterns, we have to understand something about bias before we interpret the record in ways that might not be appropriate. Before we can address gender bias in the Paleontological Society, it is necessary to review some of our history:

Percentage of women on PS Council

- Presidents: 5% (5 of 97, including me, since 1908)
- Secretary: 7% (1 of 15, since 1910)
- Treasurer: 6% (1 of 17, since 1910)
- Program Coordinators: 38% (3 of 8, since 1980)
- Education and Outreach Coordinators: 67% (2 of 3, since 1999)
- *Journal of Paleontology* Editors: 12% (2 of 17 teams, since 1986)
- *Paleobiology* Editors: 9% (1 of 11 teams, since 1974)
- Special Publications Editors: 25% (2 of 8 teams, since 1982)
- *Priscum* Editors: 25% (1 of 4, since 1992)
- Councilors: 28% (14 of 50, since 1968); 90% in past 10 years
- Student Representatives: 44% (7 of 16, since 1996)

Averaged over the past 13 years, 27% of PS officers and 31% of committee members have been women. In the 2012-2013 year alone, 32% of PS officers and 39% of PS commit-

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tee members are women. Yet, as Alycia Stigall notes in the prior essay, 8% of Schuchert Awardees (since 1973), 4% of PS Medalists (since 1963), and no individual Strimple Awardees (since 1984) have been women; 14% of PS Fellows (since 2005) are women. These are very low numbers.

Given the numbers of Paleontological Society leadership positions on Council and the awards that we grant each year, it might be possible to conclude that we are a society of misogynists. I do not believe this. And yet, as Alycia has just described in her article, female membership in the Paleontological Society is clearly lagging well behind male membership, despite the fact that women are participating in increasing proportions at recent GSA Annual Meetings. Why is this? Explanations familiar to all of us come to mind: historical bias, societal bias, personal bias, all of these, and more, play a role. According to an article in the *San Francisco Chronicle* (2012), only 14.3% of executive positions and fewer than 20% of board seats in Fortune 500 companies are held by women; over 25% of these companies have no women at all in executive roles. So there is clearly a societal lag in recognizing women as capable leaders, a lag that extends far beyond the sciences. But we can't let this be an excuse to do nothing. We can do a better job in the Paleontological Society of recruiting women, as well as men, to become members of the PS, to encourage them to retain their membership as they move through their careers, to volunteer themselves for Council positions, and to nominate women for PS awards. We need to make PS membership more valuable, relevant, and adaptable throughout the careers of women, as well as men. The Paleontological Society Council is working to develop creative solutions to this problem; ideas from membership are very welcome!

In summary, I underscore Alycia's recommendations, as well as those made in the summer 2012 issue of *Priscum* on "paleontological activism" (Carlson 2012)—we need both women and men as paleontological activists. I agree with Alycia that each of the points applies even more urgently to racial minorities and disabled individuals. We must con-

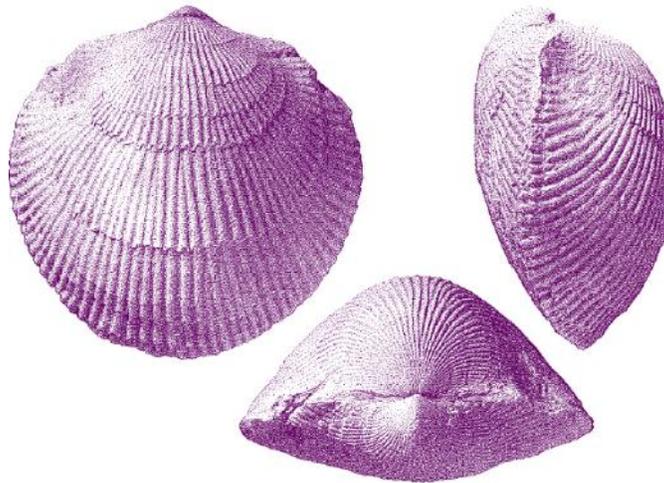
tinue to encourage young women to apply to graduate school, to present talks, to write manuscripts, and to become members of and participate in the Paleontological Society. Female AND male PS members, please be mindful of women colleagues when considering nominations for PS

Council officers, for the PS Medal or Schuchert or Strimple Awards, or as PS Fellows. There are many highly competitive and fully qualified women in our midst known for outstanding scholarship. If we all do a better job of considering gender diversity seriously, particularly in the Paleontological Society, we can be proud of Paleontologist Barbie as a role model for children, and for her unique style of representing

women and paleontology to the rest of the world. In the meantime, I'd like to know where I could buy myself a pink canteen . . . ↗.

Works Cited

- Carlson, S.J. 2012. Paleontological activism. *Priscum* 19(2): 1-2.
- Fortune 500 execs—only 14.3% of women. 2012, December 11. *San Francisco Chronicle*, p. 1. Retrieved from <http://www.sfgate.com/default/article/Fortune-500-execs-only-14-3-of-women-4110083.php>



IN MEMORIAM

It is with sadness that we note the passing of the following paleontologists. Let us remember all they achieved for our field.

- Anthony ("Tony") Wright (in 2011)
- Jan Bergström
- Brian Glenister
- Farish A. Jenkins, Jr
- June Ross
- Richard Tedford

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/) for discount codes. Note that these discounts are for Society members only. Please do not distribute!

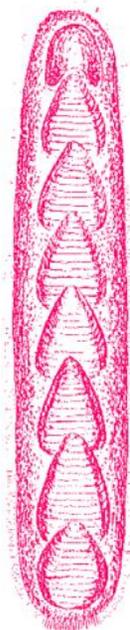
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Palaeontological Association: Discounted member rates on publications of the Palaeontological Association (www.palass.org).

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In association with The Paleontological Society, Wiley is pleased to offer all members a 20% discount on selected Wiley books—enabling you to enhance your research while saving you money! Visit <http://www.wiley.com/WileyCDA/Section/id-815505.html> to browse through the selection of latest book titles available. Then just use the listed discount code at the Wiley.com checkout to receive a 20% discount on paleontological and related titles.

PALEOBIOLOGY UPDATES FROM THE EDITORS

By Bruce J. MacFadden, Jonathan Bloch, Douglas S. Jones, and Michal Kowalewski, *Paleobiology* editors

Over the past two years since the *Paleobiology* editorial office has been at the University of Florida, we have instituted changes that have affected the review and publication process. In 2011, we set a goal of “submission to initial decision within 90 days” from the time a manuscript is submitted. During this period we have achieved this goal for three-quarters of manuscripts.

We typically accept about 60% of submitted manuscripts, all of which undergo minor to major revisions based on peer-review before they enter the production queue. Of the remaining 40% of submitted manuscripts that we are not able to accept, about half are resubmitted for further consideration.

We have no backlog, meaning that accepted manuscripts are queued in the next available issue, currently 39 (2). As of 2013 (volume 39), articles in final proof stage will be made available on-line, typically months before the print version. Thus, individual issues of *Paleobiology* in progress (i.e., prior to the print date) will be “built” incrementally as manuscripts are ready. These will be available on-line via services such as BioOne. This will result in a time from final

acceptance to being available on-line of ~1 to 2 months, with the print version of the issue following ~1 to 3 months later (depending upon where an article is queued within an issue). In addition, data and supplementary materials relevant to published articles are uploaded via DRYAD.

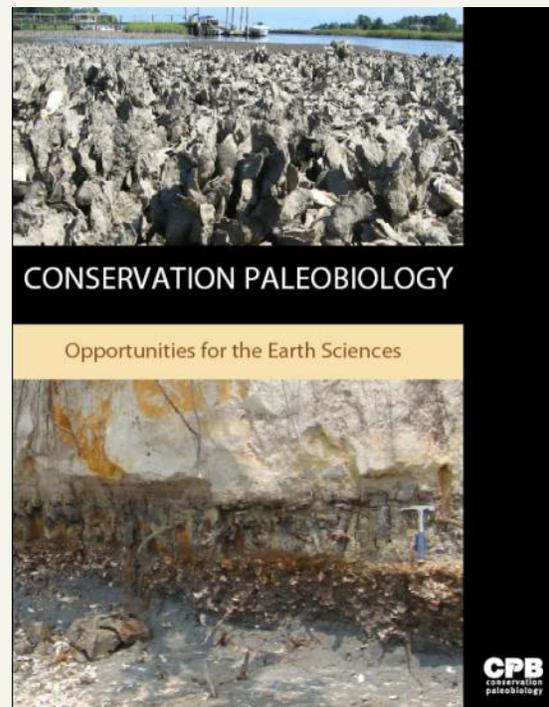
With an impact factor of 2.93 (BioOne), *Paleobiology* ranks 3 out of 49 paleontology journals and therefore has high visibility within our profession, as well as in related disciplines. The success of *Paleobiology* depends upon its authors and dedicated reviewers. We invite submission of your articles that are appropriate for *Paleobiology*. For Guidelines to Authors, see <http://www.paleosoc.org/content/AuthorContribInstr.html>.

For other information, including pre-submission inquiries, please contact us at: paleobiology@flmnh.ufl.edu.



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. Hard copies of the report can be obtained upon email request to Greg Dietl at gpd3@cornell.edu.



NOMINATIONS ARE NOW OPEN FOR 2013 PS OFFICES AND AWARDS

Your participation is encouraged to nominate Society offices and awards! Please use the appropriate addresses below to contact the committee chair for the respective positions. For questions about society governance, please see our [Constitution and By-Laws](#). For nominating details on awards, see <http://www.paleosoc.org/awards.html>. Thank you for your participation in the process of choosing our leaders and honorees.

Nominations for Council positions open in 2013

Names will be considered by the Nominations Committee, with final decisions on nominees by Council. Self-nominations welcome! Nominations Committee Chair: Scott Wing (WINGS@si.edu)

- **Councilor Under 40**
- **Paleobiology Editors**
- **Education & Outreach Coordinator**
- **Communications Officer** (A new position established by Council on November 6, 2012. The Communications Officer shall supervise and coordinate all matters connected with Society public relations and communications efforts, in consultation with Council. This officer shall oversee and assign (with confirmation of Council) the appointment of Editors to carry out communications in various media, as deemed necessary (such as *Priscum* Editor, Website Editor, and Social Media Editor). The Communication Officer will serve a three-year term, with the first beginning in 2013-2014. This position will be filled by an uncontested election. It effectively replaces the *Priscum* editor on Council.)

Charles Schuchert Award

The Schuchert Award recipient should be a person whose work early in his or her career reflects excellence and quality. Ordinarily, The Paleontological Society shall present the Charles Schuchert Award to a Member under 40 years of age at the time the award is given. This Award may be made intermittently. Schuchert Award Chair: Philip D. Gingerich (gingeric@umich.edu)

Paleontological Society Medal Award

The recipient should be a person whose eminence is based on advancement of knowledge in paleontology. It is recognized that this medal may be awarded intermittently. Paleontological Society Medal Chair: Philip D. Gingerich (gingeric@umich.edu)

Paleontological Society Fellows

Fellows are members of the Paleontological Society who have made significant contributions to paleontology through research, teaching, or service to the profession. Recipients of the Paleontological Society Medal and the Charles Schuchert Award automatically become Fellows if they have not previously been elected to fellowship. Any member of the Paleontological Society may nominate another member for election to fellowship; the nomination must also have the support of two active Fellows. Chair: Roger D.K. Thomas (roger.thomas@fandm.edu)

Strimple Award

The Strimple Award recognizes outstanding achievement in paleontology by amateurs (someone who does not make a living full-time from paleontology). Contributions may be an outstanding record of research and publication, making outstanding collections, safeguarding unique paleontological materials through public service, teaching activities in the area of paleontology, and collaborations with others working in paleontology. Strimple Award Chair: Steve Holland (stratum@uga.edu)



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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 for more details.

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

Gene Hunt (2011–2013),
Smithsonian Institution
(hunte@si.edu)

- *Understanding the fossil record of evolution: from Darwin to today*
- *Climate change and body size trends in deep-sea ostracodes*



Patricia Kelley (2009–2013), UNC at Wilmington
(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*



2013 PS Short Course

Ecosystem Paleobiology and Geobiology
(Organized by Andrew Bush, Sara Pruss, and Jonathan Payne, in Denver, CO)

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 or contact Dr Paula M. Mikkelsen, PRI Director Publications (pmm37@cornell.edu or by phone 607-273-6623, ext 20).

**PS INTERNATIONAL RESEARCH PROGRAM
(PALSIRP SEPKOSKI GRANTS)
AWARDEES FOR 2012**

Russia

Alexander Bannikov
(Borissiak Paleontological Institute, RAS, Moscow)
Research on marine fishes from the Paleocene /Eocene boundary deposits in the north Caucasus.

Alexander Ivanov
(St. Petersburg State University, St. Petersburg)
Late Paleozoic sphenacanthid sharks of Russia: morphology, systematics, and phylogenetic relationships.

Vasily Marusin
(Trofimuk Institute of Petroleum Geology and Geophysics, Novosibirsk)
Organism-sediment interactions during the late Ediacrian Kotlinian Crisis: insight to evolving benthic communities.

Igor Novikov
(Borissiak Paleontological Institute, RAS, Moscow)
The last anthracosaurian amphibians: Triassic chroniosuchians.

Andrey Sennikov
(Borissiak Paleontological Institute, RAS, Moscow)
Toward the faunistic verification of the Permo-Triassic boundary in continental deposits of Eastern Europe. 1. Vladimir region.

Elena Syromyatnikova
(Dept. of Herpetology, Zoological Institute, RAS, St Petersburg)
Study of Neogene turtles of European Russia.

Maria Tekleva
(Borissiak Paleontological Institute, RAS, Moscow)
Unique pollen morphology and ultrastructure of Wodehousia and Aqualapollenites: botanical and geological implications.

Zoya Tolokonnikova
(Kuzbass State Pedagogical Academy, Novokuznetsk)
Late Devonian-Mississippian bryozoans from the south of the western Siberian plain, Russia.

Ukraine

Andriy Bratishko
(Luhansk Taras Shevchenko National University, Luhansk)
Late Eocene-Early Oligocene teleostian fish fauna (otoliths) from Crimea, Ukraine.

Evgeny Perkovsky
(Schmalhausen Institute of Zoology, NASU, Kiev)
Water insects in Rovno Amber: Ukraine or Russoscandia?

Helena Sirenko
(Institute of Geological Sciences, National Academy of Sciences of Ukraine, Kiev)
Influence of main geological events in the late Pliocene over the vegetation cover composition of Platform Ukraine and correlation of various in age upper Pliocene sediments using palynological data.

Romania

Sanda Iepure
(Institute of Speleology, University Babes-Bolyai Kogalniceanu, Cluj)
Cave sediments ostracod assemblages from sulfidic-based ecosystems as proxy for upper Pleistocene paleoclimate reconstruction.

Estonia

Olev Vinn
(Department of Geology, University of Tartu, Tartu)
Symbiotic interactions in the Ludlow reefs on Saaremaa Island, Estonia.

Czech Republic

Milos Siblik
(Institute of Geology, Academy of Sciences of the Czech Republic, Prague)
Lower Jurassic brachiopods of the Grmning Mt. (Austria, Styria): comparison to the coeval brachiopod fauna from the neighbouring southern parts of Totes Gebirge Mts., facies relations.

Hungary

Alfréd Dulai
(Dept. of Paleontology and Geology, Hungarian National Museum, Budapest)
Eocene brachiopods of the Thrace Basin (Turkey).

**Congratulations
and best wishes for
your research!**



PS INTERNATIONAL RESEARCH PROGRAM (PALSIRP SEPKOSKI GRANTS) ANNOUNCEMENT FOR 2013

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 2013, 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 for further information.)

1. The **Cover sheet** (downloaded from [here](#) on the *Sepkoski Grants* announcement on the website) 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. **Please do not submit proposals by post!**

Proposals must be received by **April 1, 2013** to be considered for 2013 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 2013 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. ↗



PS EDUCATION AND OUTREACH GRANT AWARDEES FOR 2012

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 2012 recipients of PS Outreach and Education Grants:

Dave Marshall and Jon Tennant
(Ichron Ltd. and Imperial College London)
“Palaeocast”

The website www.palaeocast.com presents high-quality podcasts in which paleontologists describe their research as well as forums for discussion of paleontological topics.

Timothy D. Raub

(University of St. Andrews, Scotland, UK)
“3-D laser scanning of index fossils: grade school, undergraduate, and teacher engagement at the intersection of biostratigraphy and technology; in the classroom, via GeoBus, and online”

A 3-D laser scanner will be incorporated into the University of St. Andrews’ outreach vehicle GeoBus, allowing real-time scanning of important index fossils and demonstrating the “high-tech” nature of modern paleontological research to young students.

George Stanley and Ray Fanning

(University of Montana-Missoula)

“Fossil Stories’ Radio Segments”

A series of short radio segments, featuring the adventures of “Fossil Man” and “Paleo-Kid,” that highlight aspects of Montana paleontology will be created to air on public radio.

**Scott Williams,
Sheila Rawlings,
and Hillary Parks**
(Burpee Museum of
Natural History)

“Jurassic Journey”

A Middle Jurassic bonebed in Utah provides a site for public outreach via organized tours as well as opportunities for undergraduates to learn field techniques and the importance of community engagement.

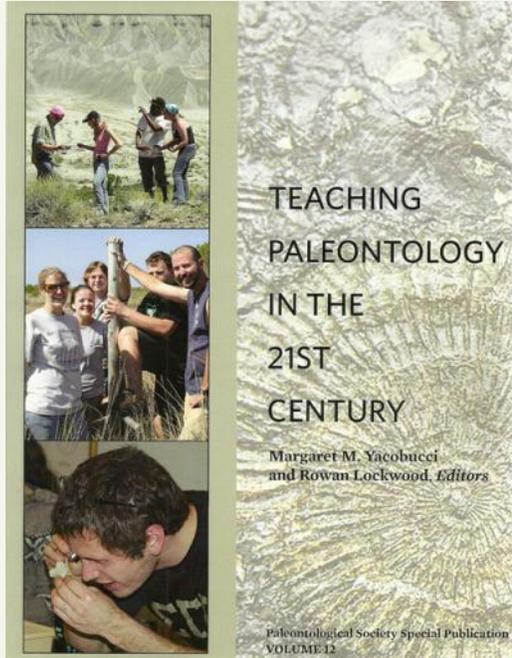
Each awardee receives \$2,500 to carry out their educational outreach activities.

Please consider applying for the 2013 Outreach and Education Grant Program in the spring! ↗

***Congratulations to the
2012 Education and
Outreach awardees!***

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. And check out the on-line supplementary content at: <http://serc.carleton.edu/NAGTWorkshops/paleo/index.html>.



PS OUTREACH AND EDUCATION GRANT 2013

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.

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.

Amount of Grant

The Paleontological Society will issue four grants of \$2500.00 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:

1. A project proposal, three to five pages in length, single-sided, which must include:
 - a project title
 - names and contact addresses of participating personnel
 - 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 of each of the project personnel.

Deadline for submission: March 29, 2013

Submissions

Email all application materials to Peg Yacobucci, Chair, PS Education & Outreach Committee: mmya-cob@bgsu.edu. Electronic files should be in .pdf, .doc, or .docx format.

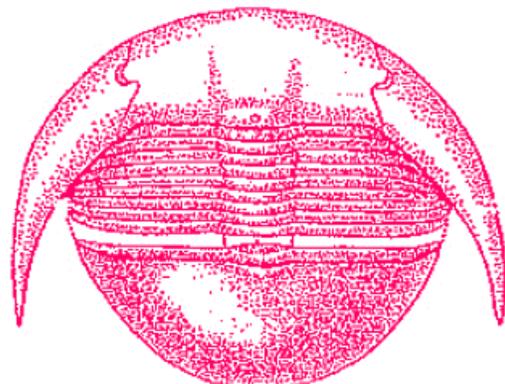
Review Process

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 in June.

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 2014 detailing the project's outcomes. Details on the reporting requirements will be sent to all grantees. ↗



2012 OUTSTANDING STUDENT POSTER AWARDEES

Peter J. Harries, Treasurer

As has become a tradition at the GSA Annual Meeting, professional members of the Paleontological Society judged the posters of student members at all PS-sponsored sessions at the 2012 meeting in Charlotte (Nov. 4-7). The committee evaluated 34 student posters from the different applicable sessions. Based on the judges' assessment, the following students were chosen as the winner and two runner-ups in the competition:

Winner (\$250):

Shelly Donohue (with co-authors: Larisa Desantis, Blaine Schubert, Peter Ungar, and Deano Stnyder) – Vanderbilt University – Using dental microwear textures to reconstruct feeding ecology of bears.



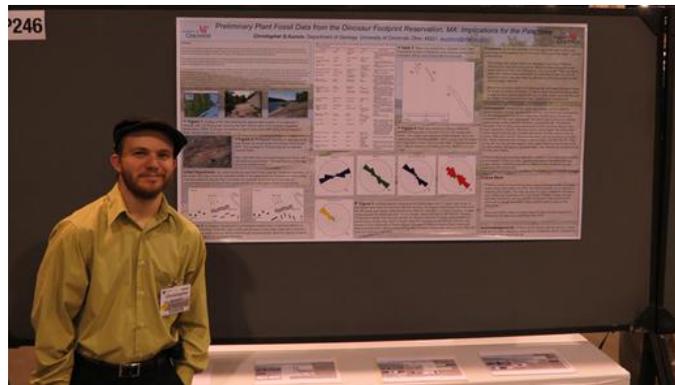
Outstanding Poster Winner Shelly Donohue with jaws of *Arctodus pristinus*, the lesser short-faced bear, from the Florida's Pleistocene.

Runner-Ups (\$100 each):

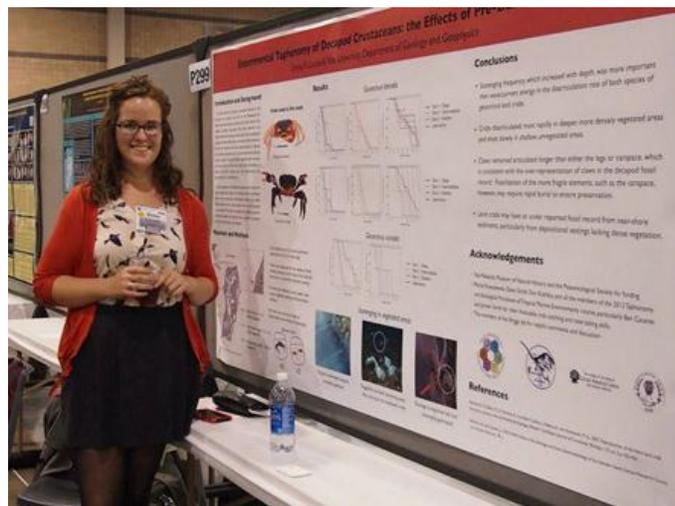
Christopher Aucoin – University of Cincinnati – Preliminary plant fossil data from the dinosaur footprint reservation, MA: Implications for the paleolake.

Emma Rose Locatelli – Yale University – Experimental taphonomy of decapod crustaceans: Assessing the effects of pre-burial processes

Congratulations to the students for the exceptional content of their posters as well as their ability to effectively present that material! I also want to thank the many judges, without whose commitment this poster award would be impossible. I am always looking for additional judges, so if you are interested, please contact me at harries@usf.edu.



Outstand Poster Runner-Up Christopher Aucoin presenting his work.



Outstand Poster Runner-Up Emma Locatelli presenting her work.

PS 2012 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, February 15, 2013.

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. 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 www.paleosoc.org/appform13.pdf 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.

Application materials must be received at marc.laflamme@utoronto.ca by **midnight (Pacific Time) on Friday, February 15, 2013**. 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/>

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 for additional benefits. The current student representatives are Sarah Tweedt (University of Maryland, TweedtS@si.edu) and Max Christie (Pennsylvania State University, 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. 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

GRANT OPPORTUNITIES

Call for Pre-Proposals: Scientific Drilling and the Evolution of the Earth System--An NSF Workshop

A National Science Foundation-sponsored workshop will occur May 17-19, 2013, in Norman, OK, on "Scientific Drilling and the Evolution of the Earth System: Climate, Biota, Biogeochemistry, and Extreme Events." The objective of this workshop is to 1) develop a community of researchers interested in using scientific drilling for sedimentary targets to address questions of Earth System evolution, and 2) offer these researchers direction on how to proceed-- e.g. how to develop a compelling drilling proposal, logistical issues to consider, funding sources to approach, etc. The intent is to galvanize research teams to move forward with future proposals for pursuing specific, high-priority drilling targets.

To secure participation, all interested researchers are invited to submit a brief (maximum 3 pages) pre-proposal identifying a viable continental scientific drilling target that addresses fundamental problems of scientific importance in the areas of paleoclimate, earth history, stratigraphy, paleoecology and/or paleobiology from any interval of Earth History. All proposals should briefly address the following criteria:

Science

- Location and age of target deposits
- Compelling science issue(s)/hypotheses to be addressed by drilling, focusing on topics in paleoclimate, paleoenvironments, paleobiology, and/or extreme events
- Stratigraphic completeness, continuity and resolution
- Existence of baseline stratigraphic, and paleontologic data
- Existence of, or potential to collect, supporting data from correlative outcrops, geophysics or prior drilling
- Existence of, or potential to collect, a robust age model through the target interval

Logistics

- Challenges to drilling the site and obtaining subsurface information (e.g., suitable terrain for site-survey geophysics)
- Access for drilling equipment
- Permitting issues
- Complexity of operations, local impact/cooperation (community and environmental)

We encourage pre-proposals to be submitted by teams of interdisciplinary researchers and will strive to accommodate as many members of a team as funds allow, while enabling as many teams to be represented as possible.

The workshop is meant to enable proponents to exchange information and best practices in order to ultimately develop more sophisticated proposals for future drilling. Proponents should be prepared to become centrally involved in subsequent geophysical and logistical site survey proposals and follow-on work aimed to advance promising drilling targets.

Pre-proposals are due by **Friday, April 12, 2013**. They should be a maximum of 3 pages in length, not including references, and submitted via email as .pdf files to: Dr. Lynn Soreghan (lsoreg@ou.edu), University of Oklahoma or Dr. Andrew Cohen (cohen@email.arizona.edu), University of Arizona.

New Funding Opportunity for Sedimentary Geology and Paleobiology: Earth-Life Transitions (ELT)

The Sedimentary Geology and Paleobiology program at NSF is pleased to announce a NEW funding opportunity for the SGP community! This program, called "Earth-Life Transitions" (ELT), is a direct response to some of the grand challenges posed by the community through a number of workshops and National Academy reports. ELT will support fundamental research into Earth system dynamics, focusing on scientific questions at the frontiers of cli-



National Science Foundation
WHERE DISCOVERIES BEGIN

GRANT OPPORTUNITIES

mate change and biogeosciences. The goals of the Earth-Life Transitions program are 1) to develop the synergistic activities and capabilities of multi-disciplinary scientists to address critical questions about Earth-Life interactions in deep time and 2) to enable team-based interdisciplinary projects involving stratigraphy, sedimentology, paleontology, calibration and application studies, geochronology, and climate modeling at appropriately resolved scales of time and space, to understand the major linked events of environmental, climate and biotic change at a mechanistic level.

This program is Track 2 of the newly revised SGP solicitation 12-608 and can be found on the SGP website: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13691. The estimated number of awards for the Track 2 ELT competition is ~6 at <\$500,000 and ~4 at \$1,000,000-\$1,500,000. A PI can only submit ONE proposal to the Track 2 competition. The program will be offered every other year in the Spring (2013, 2015, 2017). The deadline for submittal is February 23, 2013 and January 17 in 2015 and 2017. Normal merit review criteria as well as page limits, data management and post-doc mentoring plans apply.

If you have any questions regarding this new funding opportunity, please contact the SGP Program Officers: H. Rich Lane (email: hlane@nsf.gov; phone: 703-292-4730) and Lisa Park Boush (email: lboush@nsf.gov; phone: 703-292-4724).

And stay tuned for the new Integrated Earth Systems (IES) program that might be of interest to the paleontology community. It will be competed in 2014. More information can be found on the NSF website: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504833.



Conchologists of America (COA) has grants available for research on fossil and living mollusks

The Conchologists of America (COA) is holding its annual Academic Grants competition again in 2013. The full grants announcement is posted on the COA website under <http://www.conchologistsofamerica.org/grants/>. Deadline for submission of the applications, including letters of recommendation (if applicable), is February 28, 2013. People of all nationalities and countries of residence can apply. Students as well as non-students can apply, including amateur shell collectors as well as researchers holding a degree. Only students in degree-seeking programs need to provide a letter of recommendation. Repeat applications in multiple years are permissible. Previous recipients are permitted to apply for new awards, but must include report/American Conchologist ms/article with submitted material. The usual maximum award is US\$1500. The majority of grants (~80%) is usually awarded to degree-seeking students, with MSc and PhD students approximately evenly distributed. The quality of the project is the only deciding factor. Usually 35-45 applications are received, of which around 11 can be funded.

Nominate a vertebrate paleontologist for the American Society of Mammalogist's C. Hart Merriam Award

The American Society of Mammalogists is now accepting nominations for the C. Hart Merriam Award. The C. Hart Merriam Award is given to eminent scholars in recognition of outstanding research in mammalogy over a period of at least 10 years. C. Hart Merriam was the first chief of the Division of Economic Ornithology and Mammalogy of the United States Department of Agriculture, and a founding member of the American Ornithologists' Union, the National Geographic Society, and the American Society of Mammalogists. Among other contributions, he developed the concept of "life zones" to classify biomes found in North America. Nominations for the Merriam Award will be considered without regard to national citizenship or activity in the ASM. Persons interested in nominating someone for the Merriam Award should send a single letter of nomination and a copy of the nominee's CV via email to Felisa Smith (fasmith@unm.edu) by **10 February 2013**.

COURSE ANNOUNCEMENTS

2013 Paleobiology Database Intensive Workshop in Analytical Methods

About the workshop

The Paleobiology Database has sponsored a five-week intensive training workshop in analytical methods since 2005. As in previous years, the 2013 workshop will be held at Macquarie University in Sydney. Sessions are expected to be held between 17 June and 21 July. The Australian Research Council and the National Science Foundation's Division of Earth Sciences will provide funding.

Topics will include community palaeoecology, diversity curves, speciation and extinction, phylogenetics, phenotypic evolution, and geometric morphometrics. Both simulation modelling and data analysis methods will be employed. Training will combine lectures and labs. Participants will be given hands-on instruction in programming using R and taught to use other analytical software. In addition to the workshop coordinator, each week a new instructor will be present. The instructors are expected to be John Alroy, Alistair Evans, Michal Kowalewski, Graeme Lloyd, and David Polly.

There is no fee for registration and participants will be housed for free in accommodations near the campus. Daily expenses such as meal costs are not subsidized but are only on the order of \$10 to \$15. Participants are encouraged to solicit travel funds from their home institutions or other organizations. A majority of airfare costs will be reimbursed if such funds are not available. There are no other charges of any kind and no other major expenses are likely.

How to apply

Participants should be in the early stages of their own research in any area related to palaeontology and should have a background in basic statistics. The ability to understand rapidly spoken English is essential. Although the workshop is open to all undergraduates and advanced graduate students, first or second year graduate students are particularly encouraged to apply. Applications from professionals who have completed their studies will be considered but are not given first priority. We strongly encourage applications from women and members of underrepresented groups.



Applications should be submitted in PDF format to John Alroy (john.alroy@mq.edu.au). Applications should be mailed by midnight on Thursday, **28 February 2013** as reckoned in the Pacific time zone. A cogent explanation must be given for submitting an application after the deadline. Applications should consist of a one page statement. Do not include separate documents such as a curriculum vitae. No form needs to be filled out.

The statement should include a brief description of current research plans, a list of degrees earned stating the year of graduation in each case, a brief list of relevant classes taken, and an account of the applicant's previous use of statistics and knowledge of programming. Applicants who do not employ English as a primary language should describe their experiences learning and speaking it. Applicants are encouraged to explain why the topics addressed by the workshop are of special interest to them and to what extent these subjects are taught at their home institutions.

Applications must be accompanied by a recommendation letter, also in PDF format, written by the applicant's academic advisor and e-mailed separately. Obtaining a recommendation from anyone who is not an advisor must be explained. It is important that the recommendation give details about the applicant's personal character and abilities, not just credentials and descriptions of research projects. Recommendation letters also should be received by the end of the due date.

For additional information, see [here](#) or contact John Alroy at john.alroy@mq.edu.au.

COURSE ANNOUNCEMENTS

Summer 2013 graduate field course on Paleocology of Marine Environments at the Bamfield Marine Sciences Centre (BMSC), British Columbia, Canada

Lindsey Leighton (University of Alberta) and Michal Kowalewski (Florida Museum of Natural History and University of Florida) are thrilled to announce a new project-driven graduate field course on Paleocology of Marine Environments (July 22 – August 30, 2013) at the Bamfield Marine Sciences Centre (BMSC) in British Columbia, Canada. The goal of the class is twofold: first, to expose promising young paleontological researchers to experimental and field ecology, giving these students the opportunity to work with modern organisms and environments; and second, to collect enough data and results to produce publishable research, enabling students to produce additional peer-reviewed papers prior to graduation.

Bamfield is in a spectacularly beautiful setting on the western coast of Vancouver Island and BMSC has excellent facilities. Most importantly, Bamfield's remote setting also provides arguably some of the most pristine ecosystems available for study through a marine lab in North America. For more information on BMSC, location, facilities, classes, registration, and costs, please see: <http://www.bms.bc.ca/university.html>

Please note that the application deadline is **March 1, 2013**. Applications should be sent to BMSC, through their registration system: <http://www.bms.bc.ca/university/apply.html>

The course will consist of two weeks of lecture on ecological theory, biostatistics, and project preparation, followed by four weeks of intensive ecological research. The class is primarily aimed at early-stage graduate students, but we will consider more senior graduate students as well as motivated undergraduates interested in pursuing research careers. We strongly encourage students to apply for the class. Also, we are actively seeking external funding in the hopes of defraying student costs. Please note that this course will not be offered in 2014.

The 2013 course will focus on four predefined projects. Note that Bamfield, and Canada in general, has strict environmental protection, and consequently, projects have to be designed well in advance of the class, in order to obtain the necessary permits to perform the research this summer. As an unfortunate consequence, we are not able to allow students to develop their own projects, although opportunities may exist for developing individual subprojects with the framework of the four predefined projects. The four projects will be conducted by three- or four-person teams. These projects focus on (1) comparative assessment of vulnerability of prey with variable attachment strategies; (2) ecological fidelity of death assemblages; (3) comparison of methods for assessing marine communities; (4) quantification of predation patterns and processes along a depth gradient.

If you are interested in applying and have any questions, please feel free to contact Lindsey Leighton at: lindseyrleighton@gmail.com.



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.

AGU Meeting of the Americas, Cancun, Mexico, May 2013

You are invited to participate in special session PP06 on: "Late Mesozoic-Early Cenozoic Biostratigraphy and Paleoclimates", at the AGU Meeting of the Americas, which will be held in the Cancun Convention Center, Mexico, from May 14-17, 2013. The Meeting of the Americas is sponsored by AGU and the Mexican and Latinamerican geosciences societies. Meeting information can be found at <http://moa.agu.org/2013/scientific-program/>

International Sclerochronology Conference, North Wales, May 2013

Registration and abstract submission are now open for the International Sclerochronology Conference, which will occur May 18–22, 2013 in North Wales. The deadline for early-bird registration and abstract submission is **March 1, 2013**. You can also register for the 1st Sclerochronology Field-week, which will directly follow from the Conference and will take place at School of Ocean Sciences, Bangor May 23–27. Additional information is available at <http://isc2013.bangor.ac.uk>. Please submit any questions about the meeting to isc2013@bangor.ac.uk.

Joint Meeting of GSA and the Geological Society of China (GSC) in Chengdu, China, June 2013

You are invited to participate in the Joint GSA-GSC meeting in Chengdu, China, June 17-19, 2013. There are several other paleo-relevant sessions that may be of interest, including "Mass extinction at the Permo-Triassic boundary and subsequent recovery dynamics" and "Critical transitions in the history of life and Earth." Additional information can be found at <http://www.geosociety.org/meetings/2013china/TopicC.htm>.

10th North American Paleontological Convention (NAPC) to be held in Gainesville, FL in 2014

The organizing committee is pleased to announce that the 10th North American Paleontological Convention (NAPC) will be held in Gainesville, Florida in February 2014. The meeting will be hosted by the Florida Museum of Natural History (University of Florida) from February 15th through 18th (Saturday through Tuesday). Pre-conference and post-conference field trips are tentatively planned for February 13th–14th and 19th–20th, respectively.

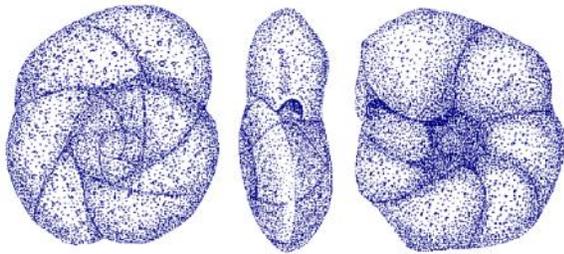
The North American Paleontological Convention is a major international paleontological event administered by the Paleontological Society under the auspices of the Association of North American Paleontological Societies. Initiated in 1969, NAPC meets every 4-5 years. The convention includes active participation from all fields of paleontology. Over 500 participants from 26 countries attended the most recent NAPC in Cincinnati (2009).

A more detailed 1st circular, including a formal solicitation for symposium/theme session proposals, student support information, important deadlines, and a preliminary website will be forthcoming shortly. We extend our warmest invitation to all who are interested in paleontology and hope to see you in Florida in February 2014!

CONFERENCE ANNOUNCEMENTS

5th Symposium on Mesozoic and Cenozoic Decapod Crustaceans, June 2013

The abstract submission and registration deadline for the 5th Symposium on Mesozoic and Cenozoic Decapod Crustaceans from June 25-27, 2013 in Poland is **March 1, 2013**. See <http://www.eurogeosurveys.org/5th-symposium-on-mesozoic-and-cenozoic-decapod-crustaceans> for additional details.



"Unifying paleobiological and comparative perspectives on character evolution" symposium at ESEB

Organizers Lee Hsiang Liow and Thomas F. Hansen (University of Oslo) would like to invite you to send abstracts to the symposium on "Unifying paleobiological and comparative perspectives on character evolution" for the 14th ESEB congress in Lisbon taking place 19-24th of August 2013. Deadline for submission is **February 28, 2013**. See additional details at <https://www.eseb2013.com/symposia>.

Goldschmidt Conference on "Geochemical and biological consequences of changes in the biological pump over geological time" in Florence, Italy, August 2013

The Goldschmidt Conference this summer in Florence, Italy (August 25-30, 2013) is entitled "Geochemical and biological consequences of changes in the biological pump over geological time." Since the advent of photosynthesis, the vast majority of primary production in the oceans has occurred in the upper two hundred meters of the water column. The spatial distribution of respiration, on the other hand, has likely varied substantially over geological time due to changes in the size and mineral content of primary producers and the evolution of animal consumers, all of which affect the net transport of organic matter from shallow to deep water (i.e., the biological pump). This session will explore the consequences of the evolving biological pump for ocean biogeochemistry and the evolution of marine ecosystems. Abstract deadline is **April 12, 2013**. See <http://goldschmidt.info/2013/> for more information.

The Paleontological Society is now on Facebook!

Search for Paleontological Society in Facebook, or click on the Facebook icon



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) for more information!

ANNOUNCEMENTS

The Paleontology Portal

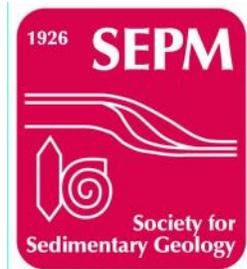
<http://www.paleoportal.org/>

The Paleontology Portal includes a wide range of educational resources, including information on famous fossil localities, a gallery of photographs of fossils, information on paleontology careers, and interviews with paleontologists.



Updated SEPM STRATA website provides educational materials on sedimentary geology

SEPM has been working over the past 18 months to revise and modernize their STRATA website, which provides educational materials on various aspects of sedimentary geology to undergraduates, graduate students, faculty, and professional geologists. Here's the link to the homepage: www.sepmstrata.org. In collaboration with Paleontological Society and the North American Micropaleontology Section of SEPM (NAMS), they have created several pages of paleontological content at www.sepmstrata.org/page.aspx?&pageid=114&5, with more planned for the future. If you are interested in providing content (lecture notes, images, videos, student exercises) on these or potential future topics, please contact Chris Kendall, the site Editor, at kendall@geol.sc.edu.



Palaeocast: Palaeontology Podcasts

Check out the new Palaeocast podcast website <http://www.palaeocast.com/>. It was created in part with funding from the Paleontological Society Outreach and Education Grant program.

The creators, Dave Marshall and Jon Tennant from the UK, have done a tremendous job developing the site and creating their first ten podcasts. They are continually looking for more volunteers to interview for upcoming podcasts. Please send them an email if you are interested!

2011 *Journal of Paleontology* Best Paper Awards

First place:

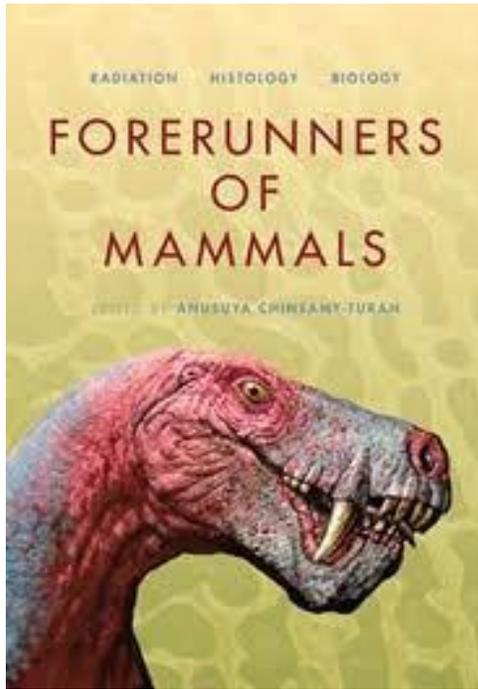
Hopkins, M.J. 2011. Species-level phylogenetic analysis of pterocephaliids (Trilobita, Cambrian) from the Great Basin, Western USA. *Journal of Paleontology* 85: 1128-1153.

Honorable mentions:

Brower, J.C. 2011. Paleoecology of suspension-feeding echinoderm assemblages from the Upper Ordovician (Katian, Shermanian) Walcott-Rust Quarry of New York. *Journal of Paleontology* 85: 369-391

Sappenfield, A., Droser, M.L. and Gehling, J.G. 2011. Problematica, trace fossils, and tubes within the Ediacara Member (South Australia): Redefining the Ediacaran trace fossil record one tube at a time. *Journal of Paleontology* 85: 256-265.

BOOK REVIEWS



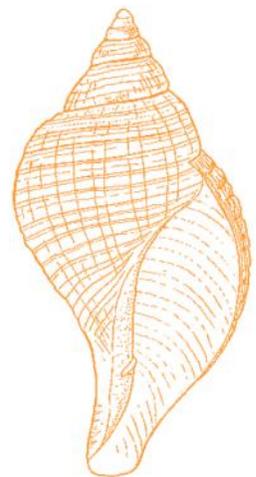
Chinsamy-Turan, A. (Ed.) 2011. *Forerunners of Mammals: Radiation, Histology, Biology*. Indiana University Press, Bloomington, IN. 352 pp. (\$42.00 cloth with 30% PS discount.)

Reviewed by Sarah Werning (University of California Berkeley, Museum of Paleontology)

The story of mammalian evolution is often told by focusing on the assemblage of mammalian characteristic and novel features; for example, the recruitment of jaw elements to form the middle ear bones. Historically, the fossil records of such transitions have been used to examine the origin, pace, and sequence of the evolution of key innovations. More recently, paleontological data have been synthesized with phylogenetic, developmental, and ecological data to provide a much richer understanding of the evolutionary mechanisms driving these key innovations. For example, a recent study by Luo (2011) used fossil and embryological data to show that the evolution of the mammalian middle ear was strongly affected by developmental heterochrony. An equally important mammalian innovation is the inde-

pendent evolution (from birds) of endothermy, the ability of an organism to generate and maintain most of its own body heat. Testing whether or not a fossil animal's body temperature differed from that of its environment is possible (Eagle *et al.* 2011), but given that some ectotherms regulate body temperature through behavior or may maintain a relatively constant body temperature by virtue of their large body size, this in itself is not strong support for endothermy. Most of the heat-producing metabolic processes happen in soft-tissue organs, but tracking the evolution of endothermy relies on finding fossilizable correlates. Unfortunately, few skeletal correlates have been identified to date. One example is respiratory turbinates, which Hillenius (1994) identified in mammalian precursors from the Late Permian.

Because mammalian body heat is generated mainly from internal metabolic processes, the evolution of endothermy might be studied in proxy by studying the evolution of metabolic rates. A proxy for some indicators of metabolic rate is found in the growth rates and histories recorded in the microstructure of bone (Montes *et al.* 2007). It is possible to track the evolution of these rates (and, by proxy, the underlying metabolic rates that supported growth rates) through the mammalian fossil record. A broad link between bone microstructure and metabolic/growth rates has long been recognized (Amprino 1947), but only recently have specific histological correlates been linked to metabolic rate (e.g., Mullender *et al.* 1996, Skedros *et al.* 2005, Bromage *et al.* 2009) and growth rate (Cubo *et al.* 2008). Histology continues to offer great potential to explore the evolution of growth, metabolism, and endothermy in mammals, and some features (e.g., osteocyte density) may allow these processes to be examined at a much finer scale than other skeletal proxies.



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Forerunners of Mammals: Radiation, Histology, Biology is the first work to examine the radiation of synapsids (the vertebrate lineage that includes living mammals) predominantly from an osteohistological perspective, although it also focuses on phylogenetic relationships, ecology, stratigraphy, and skeletal morphology. The histological observations are first placed in context of the other data traditionally used to examine synapsid evolution: the first three chapters provide an overview of their evolutionary history, diversity through time, paleoenvironment, and bone histology. Much of the rest of the book (chapters 4-10) focuses on the osteohistology of different subclades, and the final chapter reviews the evolution of mammalian endothermy.

Forerunners is subtitled “Radiation, Histology, Biology”, and it meets these goals to varying levels of success. First, histology: the book is rich in new histological data, and provides useful reviews of the literature (where possible—the bone microstructures of many taxa are described here for the first time). These new data will likely be seen as the most important and lasting contribution of this book; even if histology were the only component, this book would be well worth the purchase price for histologists and paleomammalogists. In addition to basic description, most of the authors also infer growth dynamics from their histological data, and this too is an important contribution. As a result of *Forerunners*, we now have broader taxonomic sampling among non-mammaliaform synapsids than among living mammals that are not economically important for medicine or agriculture.

Second, radiation: Kemp (Ch.1) surveys the origin and radiation of the major synapsid lineages, and succinctly covers their relationships, morphology, and ecology. As a current review of the literature it is excellent, and provides some context for the factors driving the histological changes described in later chapters. However, these data are not integrated in a truly phylogenetic sense; there are no new phy-

logenetic analyses, the chapter lacks a summary illustration showing all the major lineages discussed (the figured trees deal only with subclades that rarely overlap taxonomically), and a somewhat anti-phylogenetic rant concludes the chapter. Smith and colleagues (Ch. 2) present extensive paleoecological analyses that put the ecological radiation of synapsids in both stratigraphic and paleoenvironmental context.



Finally, biology: Beyond the histological data, the book does not succeed as well here. The final chapter, by Ruben and colleagues, reviews the origin of mammalian endothermy. This chapter differs greatly from the other chapters in this book in that it neither presents new data nor is an especially current summary (i.e., last ten years) of the relevant literature. The chapter focuses on the evolution of nasal turbinates

and to a lesser extent, insulatory structures. It is somewhat redundant with a discussion in the previous chapter by Hurum and Chinsamy. Notably, Ruben and coauthors miss an opportunity to link the evolution of these features with the trends in bone histology presented in the previous chapters, opting to dismiss summarily that entire line of evidence based on outdated interpretations of dinosaurian histology.

The final chapter illustrates a fundamental problem with this book; namely, that it doesn't synthesize the histological data that comprises most of the volume with other lines of evidence. Earlier in the book, Chinsamy-Turan (Ch. 3) describes the general relationship between bone tissue and growth rate. She correctly points out that these relationships cannot be read at face value across a phylogeny because tissue growth rates vary with skeletal element, age, body size, and other factors. However, these factors can be accounted for using stricter sampling protocols and more rigorous phylogenetic analyses (Cubo et al. 2008). Hurum and Chinsamy (Ch. 10) do summarize the differences between the osteohistology of living mammals that of their Mesozoic mammaliaform and earlier therapsid ancestors,

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but this is brief, and does not include the earlier forms.

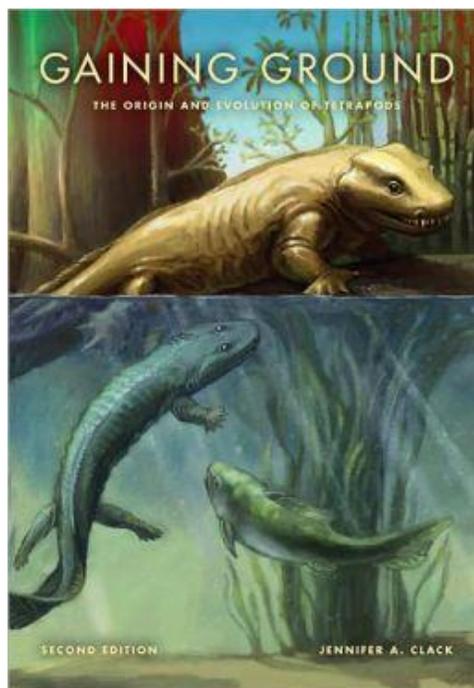
Forerunners would have benefitted from a synthetic chapter describing overarching trends in histology and growth across synapsids, linking these to other aspects of synapsid biology in a phylogenetic context, and outlining the most important needs for future research. Without this synthesis, the discussions of histology and growth dynamics are limited to comparing within-subclade variation, rather than generating new hypotheses about the mechanisms and timing of the origin of larger innovations such as endothermy. Equally problematic, the case is not made for explicit connections among growth rate, metabolic rate, and endothermy, even though the most relevant recent research on this topic uses extant mammals to establish these relationships. The result of this oversight is that the book will be of much less interest and relevance to physiologists and paleobiologists who don't work on synapsids. The bright side is that *Forerunners* provides much-needed histological data that could be used in future studies to map specific histological correlates of endothermy on a synapsid phylogeny, and more rigorously test for correlated changes in morphology and ecology as the group radiated.

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Clack, J.A. 2012. *Gaining Ground: The Origin and Evolution of Tetrapods*. 2nd ed. Indiana University Press, Bloomington, IN. 544 pp. (\$41.97 cloth, \$34.99 ebook with 30% PS discount.)

Reviewed by Jennifer Lane (American Museum of Natural History)

We all know the saying “like a fish out of water,” but perhaps this tired phrase deserves a reboot. After all, it is a fitting description of our own ancestors (not to mention we ourselves, as some recent authors have pointed out). So instead of picturing some hapless creature flopping about outside its element, perhaps it is time to think instead of a new image, one that reflects the intrepid ingenuity of our fishy forebears who first ventured onto land.

The book *Gaining Ground* by Jenny Clack recounts that ultimate “fish-out-of-water” story, the fish-tetrapod transition to terrestriality. With ten chapters and a total of 544

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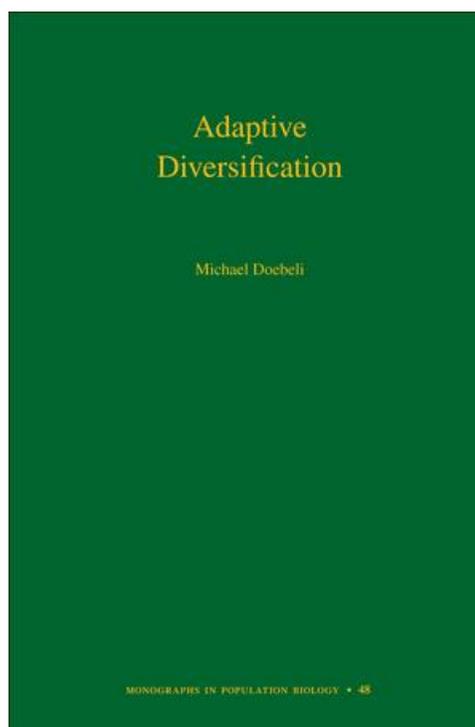
pages it is not a light read, but this book is a *tour de force* of the origin and evolution of tetrapods by one of the leading researchers in that field. The book's detailed and informative overview of the subject makes it a must for any graduate student or researcher working on tetrapodomorphs, and a useful resource for lecturers in paleontology and related fields.

Clack's account takes readers on a journey through the world of the Early Devonian to Late Carboniferous (the formative interval in the transition from water- to land-dwelling vertebrates), describing the changing environmental background that accompanied this transition and allowed it to occur. Fossils representing each of the major steps in tetrapodomorph evolution are described in chronological order of their appearance, including detailed information on skeletal morphology as well as the most recent phylogenetic and biogeographic information for each taxon. Comparative anatomy and evolution of such important features as the eye and inner ear are additionally discussed. The book is also an interesting tale of paleontological discovery, describing important tetrapodomorph localities such as Kejser Franz Joseph Fjord in East Greenland; Red Hill in Pennsylvania, USA; and East Kirkton, UK; and the circumstances under which fossils were found there.

The book begins with an overview of relationships among fish-grade sarcopterygians ('lobe-fins') including coelacanths, lungfishes, and early tetrapodomorphs (i.e., *Panderichthys*, *Tiktaalik*, *Acanthostega*), and moves on to describe the later forms that eventually gave rise to amphibians (from temnospondyls) and amniotes (from anthracosaurs). It ends with an overview of the more advanced terrestrial forms that radiated in the Late Carboniferous and Early Permian, eventually giving rise to all of the modern tetrapod lineages including mammals and archosaurs.

Clack covers intriguing topics such as the role of reduced atmospheric oxygen levels during the Late Devonian; the significance of recently discovered trackways from the Holy Cross Mountains of Poland that predate the earliest known fossils of tetrapod-like sarcopterygians; and the role of

genes in vertebrate fin-limb patterning. The book includes numerous informative illustrations, many of which are duplicated as color plates. Although frequent typographical errors in this edition are a bit of a nuisance, they do not detract from the book's excellent and informative descriptions. Overall, speaking as one sarcopterygian "fish out of water" to another, I recommend it highly.



Doebeli, M. 2011. *Adaptive Diversification*. (Monographs in Population Biology 48.) Princeton University Press, Princeton, NJ. 392 pp. (\$88.00 cloth, \$39.60 paper with 20% PS discount.)

Reviewed by Mena Schemm-Gregory (University of Coimbra)

Michael Doebeli made the attempt to explain *Adaptive Diversification* for theoreticians and theoretically inclined empirical researchers, especially those pursuing graduate studies. The book, overall, is relatively clearly written and structured; however, a good understanding of calculus is

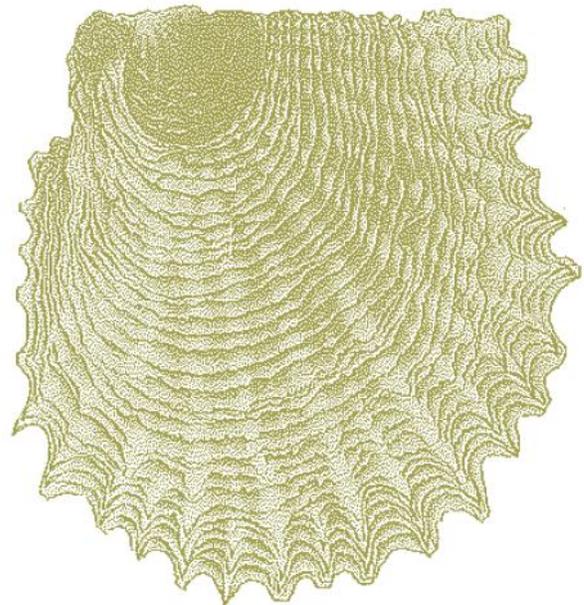
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necessary to follow and to understand the complete context of the book. The concept of adaptive diversification is generally thought to be of central importance for the history of earth, and evolution of diversity is considered as one of the most fundamental problems in biology. According to Doebeli, from the perspective of mathematical modeling, the realm of frequency dependence (which provides the parameters for modeling evolution) is more important than the realm of non-frequency dependence. This fact does not ease understanding of *Adaptive Diversification*. In his work, Doebeli tries to introduce a systematic framework for understanding how and why frequency-dependent selection impacts the evolution of diversity. He starts the book with an explanation of evolutionary branching in a "Classical model for sympatric speciation," which is followed in later chapters by an explanation and discussion of adaptive diversification models with different parameters, such as "Resource competitions in asexual and sexual models" or "Predator-prey interactions." In one of the last chapters, he uses human cultural evolution to explain diversification of languages and religions. The book ends with a chapter on "Experimental evolution of adaptive diversification in microbes."

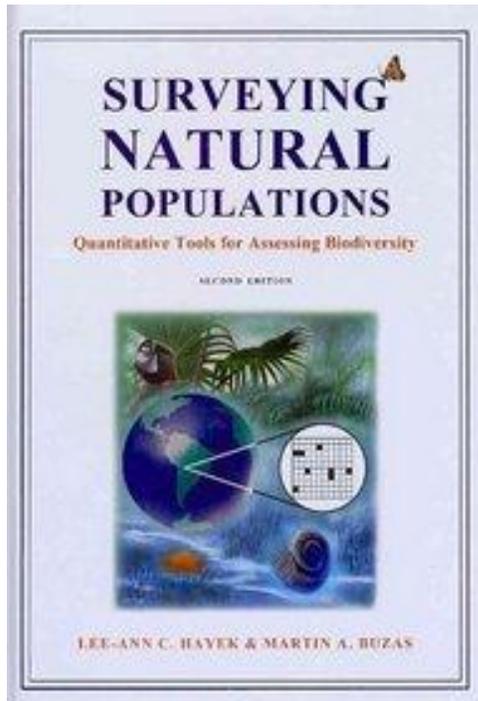
After reading the book, it can be stated that the text throughout the book is more than just a dry theoretical explanation of different mathematic formulae, as the reader may think when open the book for the first time. Instead, each chapter starts with an easy-to-follow introduction of its specific theme, including the theoretical background and the ideas and methods for calculating and interpreting the different parameters. Each formula is explained and discussed parameter to parameter, and examples are provided in most cases. Throughout the book, the author includes exercises and problems to be studied, but typically without presenting the solutions. It has to be said, however, that most of the exercises are still lacking a known solution and require further research to be carried out. The intention of the author, therefore, is not to explain how to solve a problem of adaptive diversification; instead, he tries to en-

courage the reader to solve the problem on its own and maybe even to publish the obtained solution in a scientific journal.

The combination of theoretical introduction and explanation in *Adaptive Diversification*, with exercises to improve the reader's knowledge on the topic, and with encouragement for the reader's investigations to answer currently unknown questions, make this book to more than an ordinary textbook. Therefore, the book should be considered as a "must" for practicing scientists and graduate students interested in adaptive radiations, a book meant to provoke scientific curiosity rather than just focusing on studying theoretical formulas to pass exams.



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Hayek, L.-A. C. and M.A. Buzas. 2010. *Surveying Natural Populations: Quantitative Tools for Assessing Biodiversity*. 2nd ed. Columbia University Press, New York City, NY. 616 pp. (\$72.00 cloth with 20% PS discount.)

Reviewed by J. Bret Bennington (Hofstra Univ.)

Sitting together on my office bookshelf are three texts that I use as references for understanding statistics and sampling theory in paleoecology and ecology. To the left is *Statistical Ecology* by Ludwig and Reynolds, a primer on sampling and basic quantitative methods in ecology. To the right is *Biometry* by Sokal and Rohlf, the venerable manual of statistics in biological research. Sandwiched between is a dog-eared copy of *Surveying Natural Populations* by Hayek and Buzas, a volume that I have consulted repeatedly in my career and one that has had an enormous impact on how I think about paleoecological data. In 2010 Hayek and Buzas published a second edition of this work and if you already own the first edition you probably wonder whether it is worth upgrading to the new edition. And if you aren't familiar with the book, you may be asking yourself if you should invest in a copy. Allow me to provide some guidance.

First, who in the paleontological community should read

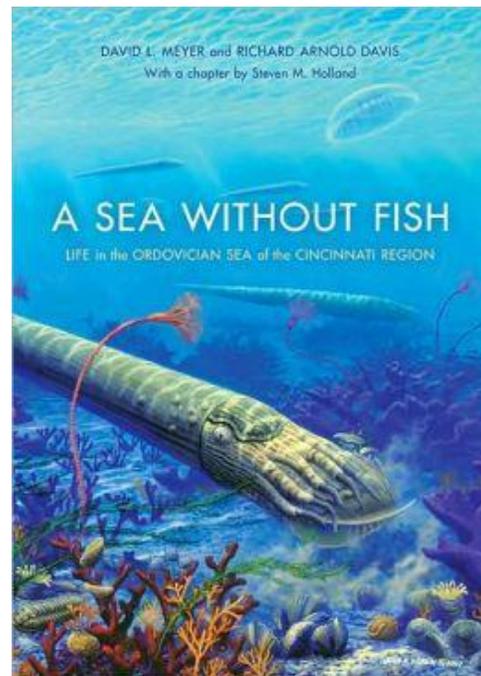
Surveying Natural Populations? I would apply a simple test. If you count fossils you should read this book. To be more precise, if you collect fossil assemblages in the field, if you survey fossil assemblages from museum collections, if you are interesting in describing fossil assemblage composition or comparing fossil assemblages for any reason, or if you are interested in measuring biodiversity using the fossil record you need to read this book. But, as the authors warn in the introduction, this is not an easy book to read. Although it is written in a casual, conversational style and it foregoes the mathematical proofs that would be expected in a statistics textbook, there are complex equations on almost every page that require careful re-reading to master (problem sets at the end of each chapter provide opportunities to practice working with the equations and an answer key is provided in an appendix.) The goal of *Surveying Natural Populations* is to quantify multi-species populations accurately and with statistical rigor. Topics covered include basic estimates of species density, mean, and variance, applying confidence limits to these estimates, field sampling strategies designed to maximize statistical confidence, modeling field data to statistical distributions, estimating and working with species proportions, estimating proportions from occurrence data, and estimating species richness and describing biodiversity. A common data set—all of the trees surveyed in a one-hectare plot in the Beni Biosphere Preserve in Bolivia—is used as a test of the various statistical analyses and methods discussed throughout the book. Examples drawn from other ecological data sets are used as well, but the Beni data provide a common thread through all of the chapters. One quibble I do have with the authors (one of whom, Buzas, is a paleontologist) is the paucity of explicitly paleontological examples. This is keenly felt in the discussions of sampling, where the reader is left to wonder exactly how the authors would advise dealing with situations where the researcher is constrained to sampling limited, discontinuous exposures of outcrop. Perhaps they will include some more detailed advice for paleontologists in the third edition.

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What's new in the second edition? Well, not that much actually. As far as I can tell, the first twelve of seventeen chapters are completely unchanged from the first edition. What have been substantially revised in the new book are the chapters addressing the measurement of biodiversity and biodiversity indices. Two original chapters on diversity indices and SHE analysis have been expanded into five (albeit short) chapters, justifying the new subtitle given to the work, *Quantitative Tools for Assessing Biodiversity*. This expansion reflects ongoing research on the part of the authors into the problems of how to best quantify and describe biodiversity. A number of biodiversity indices discussed in the first edition (e.g. Buzas and Gibson's E and Ewens/Caswell's V) have been found wanting and are dropped from the second edition, and the remaining indices are shown to be interrelated. Measures of dominance and evenness are given a chapter of their own and then unified with diversity measures, culminating in an expanded presentation of the authors' own schema for dealing with biodiversity, SHE Analysis (S—species richness, H—Shannon's information function, E—evenness). The title of chapter 17, "Biodiversity: SHE Analysis as the *Ultimate* Unification Theory of Biodiversity with the *Complete* Biodiversitygram" (emphasis mine), gives a flavor of the enthusiasm with which the authors present their solution to the problem of analyzing biodiversity. I am not really an expert on this topic and I admit that I am still grappling with SHE analysis, but certainly if you are a student of biodiversity, then it is well worth investing in the second edition for the expanded treatment of this topic.

Why should all you other fossil-counting paleoecologists out there read *Surveying Natural Populations*? There is a recurring emphasis in many of the chapters on getting the most useful and statistically reliable data with the least amount of expense and effort. There is also a repeated emphasis on the need for researchers to collect replicate samples to reliably quantify the variability inherent in natural populations. I have read and reviewed too many papers in which great effort was directed at applying sophisticated

statistical analyses with scarcely any consideration given as to how the data were collected and whether they were unbiased and representative of the target population being studied. Even if you do not use the specific statistical analyses described in this book, understanding the fundamentals of statistical sampling presented in *Surveying Natural Populations* will help you to avoid the fundamental problem of garbage in, garbage out.



Meyer, D.L. and R.A. Arnold. 2009. *A Sea Without Fish: Life in the Ordovician Sea of the Cincinnati Region*. Indiana University Press, Bloomington, IN. 368 pp. (\$31.47 cloth with 30% PS discount.)

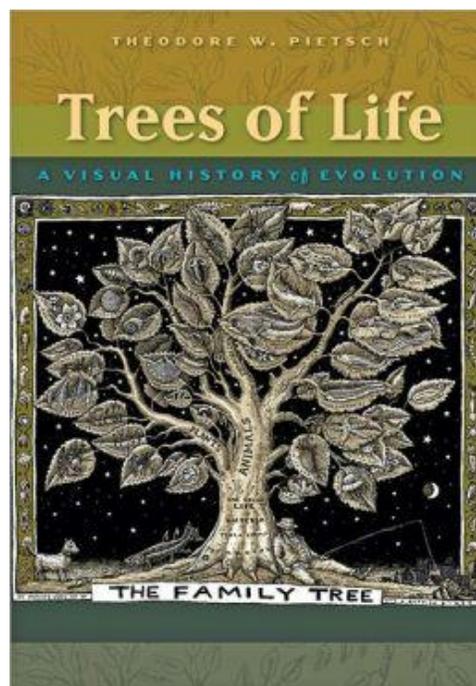
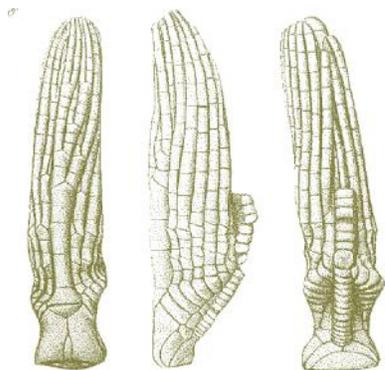
Reviewed by Cynthia D. Crane-Muston (East Carolina University)

What a great book! This book kicks off with an overview of the regional geology of the Southwestern Ohio region; by extensively presenting the background geology and geologic processes (which contributed to the preservation of the Cincinnati fauna as well as the organic evolution and fossilization processes of the fauna), the book sets the stage for "diving" into the Ordovician sea of the Cincinnati re-

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gion. Included in the opening chapters is a well written and illustrated historical account of the major contributors to the paleontology of the Cincinnati region. Using archival photography, the authors eloquently introduce the “who,” “how,” and “why” of scientific research and detail the evolution of the paleontological research of the Ordovician of southwestern Ohio. Also included in this book is a brief chapter on the basics of naming and classifying organisms, allowing the reader to become familiar with the naming conventions utilized in the upcoming chapters on the fauna. Chapters on local geology of the Cincinnati region include stratigraphic interpretations and depositional environments of the formations within the Cincinnati region, coupled with detailed use of diagrams and illustrations (as well as comparative photographs), thus providing the reader with the supportive data as to the age of the Cincinnati stratum. The bulk of the chapters discuss the various phyla of organisms that make up the Cincinnati fossil record. From algae to brachiopods to echinoderms, this book is packed full of illustrations, photographs, and diagrams to assist in the understanding of the fauna. Chapters on graptolites and conodonts, trace fossils, and paleoenvironmental interpretations and reconstructions are also included. If that is not enough, an extensive appendix of resources, glossary, and references in support of this book is very well organized and presented.

Overall, I would definitely recommend this book to anyone who has an interest in the Ordovician fauna of the Cincinnati region as well as recommend this book as a reference guide of the fossils from this region.



Pietsch, T.W. 2012. *Trees of Life: A Visual History of Evolution*. Johns Hopkins University Press, Baltimore, MD. 384pp. (\$52.46 cloth with 25% PS discount.)

Reviewed by Thomas A. Hegna (Western Illinois University)

For those of us who are not botanically inclined, trees are evolutionary and they are exclusively a post-Darwinian phenomenon. However, trees are but one of several modes of visual organization that were employed by pre-Darwinian naturalists—trees happen to be the most successful of these, and the ones that have survived into modern usage.

Theodore Pietsch, in *Trees of Life: A Visual History of Evolution*, presents a thorough narrative that explores the history of diagrams that represent the connections between different forms of animal and plant life. In doing so, his title does not give him enough credit—he explores the pre-evolutionary history of such diagrams: ladders, chains of being, bracketed tables, networks, maps and others (to be fair, I could not think a more succinct title either). The book

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is very well illustrated, with 230 different examples of ‘trees’ that date from 1512 to the present. Chapters are short—focused on different tree ‘styles’ in time. Pietsch discusses what the authors were trying to convey with their diagrams—indeed, it is easy for a modern reader to apply ‘tree-thinking’ (*sensu* Baum *et al.*, 2005) to Conrad Gessner’s 1555 diagram showing the classification of wading birds; but in fact, it only demonstrates ‘organizational thinking’. The short, but exhaustively illustrated chapters help maintain focus—forgive the pun, but the chapters prevent the reader from losing sight of the forest due to all of the trees.

The breadth of scholarship here is impressive. The book does not claim to be exhaustive; it samples trees from an array of taxonomic groups as well as iconic or influential diagrams. To Pietsch’s credit, his own taxonomic specialty is not discernible from the choice of diagrams presented in the book (he is an ichthyologist at the University of Washington). Innovative, pre-evolutionary tree-organizers are included, such as Conrad Gessner, Carl Linneaus. Jean-Baptiste Lamarck, Georges Louis Leclerc de Buffon and Nicolas Charles Seringe as well as evolutionary luminaries like Charles Darwin, Ernst Haeckel, Willi Hennig and Alfred Romer and lesser-known figures like William Patton and William King Gregory. Though my own favorite group, the arthropods, may not have been covered as thoroughly as I would have liked, the little vignette on each tree represents an incredible amount of research and dedication to this multifaceted and multilingual subject.

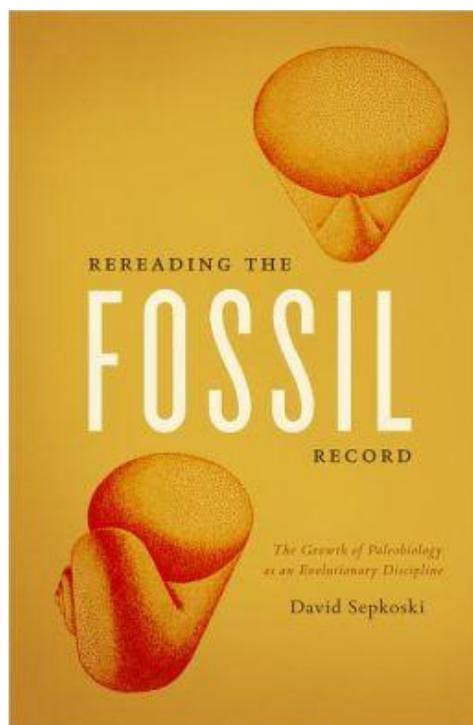
A good book pushes the boundaries of its own scope. And *Trees of Life* raises questions for future authors to address: are their precursors to evolutionary trees present in Asian or Islamic scholarship? What is the relationship between tree publication and printing technology (not everyone is as fortunate as Darwin to have their notebooks and sketches preserved for posterity)?

I recommend this book for anyone interested in natural history and the history of science. It is a valuable reminder that ideas, like evolutionary trees, do not appear in a vacu-

um, but rather have their roots (pun unavoidable) in the scholarship of others.

Works Cited:

Baum, D.A., S.D. Smith, and S.S.S. Donovan. 2005. The tree-thinking challenge. *Science* 310: 979-980.



Sepkoski, D. 2012. *Rereading the Fossil Record: The Growth of Paleobiology as an Evolutionary Discipline*. University of Chicago Press, Chicago, IL. 440 pp. (\$38.50 cloth, \$7–\$30.80 ebook with 30% PS discount.)

Reviewed by Roy Plotnick (University of Illinois at Chicago)

Paleontologists are, by their very nature, students of history. Yet the study of our own discipline’s development has been badly neglected. Say “history of paleontology” and I suspect most of us can dredge up Steno, William Smith and Georges Cuvier, nod to Charles Darwin, and jump to the Cope-Marsh “bone-wars.” This emphasis on the era before 1900 is reflected in the academic and popular histories of paleontology, such as the masterful works of Martin Rud-

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wick on the early evolution of the science. The neglect of the historical development of paleontology over the last century is highly unfortunate, since this is when the current theoretical and methodological foundations of the field were established.

The first attempt to address this neglect was the somewhat uneven 2009 volume *The Paleobiological Revolution*, edited by David Sepkoski and Michael Ruse. Sepkoski has now followed this up with the insightful and excellent book *Re-reading the Fossil Record*, subtitled *The Growth of Paleobiology as an Evolutionary Discipline*. As is evident from the title and subtitle, the current volume focuses on the efforts of a relatively small cadre of paleontologists to fundamentally shift the conceptual bases of paleontology away from its close association with geology towards an integration with biology, as reflected in the label “paleobiology.”

As such, it focuses on the era on the 1960’s to the 1980’s, although it gives context by reviewing key contributions during earlier decades, such as Simpson’s 1944 *Tempo and Mode in Evolution*.

A historian of science, Sepkoski has melded a historian’s detailed documentation with a clear description of the science itself and perceptive insights into the personalities of the key players. In addition to oral interviews, Sepkoski has taken full advantage of preserved personal correspondence, as well as the archives of the Paleontological Society and its journals. These reveal the frank and not uncommonly acrimonious discussions among the major players. The detailed description of the genesis of the 1972 Eldredge and Gould paper on punctuated equilibrium is alone worth the price of the volume and contains the best single-sentence description I have ever seen of Gould’s unmistakable writing style (p. 167).

In the context of the larger community of scientists, the

book is a necessary corrective to the implicit view that Stephen Jay Gould was the only really important paleontologist of the late twentieth century, an impression fostered by the recent stream of posthumous volumes focusing on his work. Instead, progenitors of paleobiology such as G.G. Simpson and Norman Newell are covered at length, and key figures such as James Valentine, Niles Eldredge, David Raup, Steven Stanley, and J. John Sepkoski (the author’s father) receive full credit. Especially important is that the contributions of Thomas Schopf are given their proper due. These include his editing of the key *Models in Paleobiology* volume, which included the original Eldredge-Gould punctuated equilibrium paper, and establishing, by almost sheer force of will, the journal *Paleobiology*. At the same time, Sepkoski does not shy away from showing what a “prickly temperament” Schopf had.



As an observer of (but not a participant in) many of the developments discussed in this book, I found little to disagree with and was enlightened by many of the details discussed. For example, I had not fully appreciated the impact on paleobiology of developments in ecological theory, such as MacArthur and Wilson’s 1963 equilibrial model of island biogeography. I had also forgotten the extent to which the 1973 paper by Flessa and Imbrie on “evolutionary pulsations” presaged Jack Sepkoski’s later work on evolutionary faunas,

including the use of factor analysis. The history of the formation and demise of the “MBL group” was fascinating, in particular how it led to an intellectual rift between Schopf and the other members of the group. As convincingly argued by Sepkoski, modern analytical paleobiology is strongly based on the melding of the purely theoretical approach typified by the MBL simulations with careful statistical analyses of large paleontological databases.

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If you read no other sections of this book, you should not skip the final two chapters. These explore the nature of the paleobiological “revolution,” not in the simplistic Kuhnian sense in which many of us would use the term, but as profoundly political, institutional, and self-conscious. As Sepkoski cogently puts it (p. 387): “the 1970’s was a period of revolution in paleontology because paleobiologists saw themselves and described what they were doing, as revolutionary”.

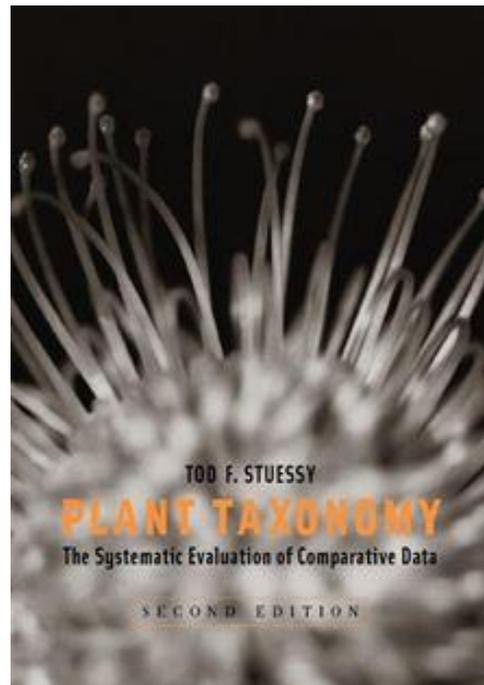
There are some topics which would have merited at least a passing mention. First of all, simultaneous and often conflated with the debate over punctuated equilibrium was the fierce battle concerning the use of cladistics in paleontology and the role of stratigraphic data in phylogenetic analyses (for example, Gingerich 1985 in *Paleobiology*). Second, in the summary chapter, Sepkoski discusses how “the history of paleobiology is more a conflict between rival networks of social organization and practice than a battle between conflicting logical claims of how the world ‘is’.” What is missing are any details about this “rival network;” i.e., who were the chief opponents of the emerging discipline? (Art Boucot



and Rube Ross are two names that come to mind). I would also like to have seen James Beerbower’s 1960’s introductory textbook given some credit; almost half of his volume covered topics that would be considered paleobiological. There is also little on the impact of paleobiology on paleontology outside the United States. Finally, it would have been appropriate to include photos of the principal figures discussed.

This book should be on the shelf of every professional paleontologist. It should also be required reading for every student entering the field. They will gain insights not only into the science of paleobiology, but a far

better understanding of how science as a discipline works. And they will know that the history of paleontology did not end with Cope and Marsh!



Stuessy, T.F. 2009. *Plant Taxonomy: The Systematic Evaluation of Comparative Data*. 2nd ed. Columbia University Press, New York City, NY. 568 pp. (\$80.00 cloth with 20% PS discount.)

Reviewed by Melanie DeVore (Georgia College & State University)

This volume contains both a conceptual approach to the philosophy of systematics and a practical introduction to understanding the types of data and the methodology used in classifying plants classification. Stuessy organized the contents of this tome into two parts: Principles of Taxonomy (Part One) and Taxonomic Data (Part Two). Part One covers the principles of classification, approaches of taxonomy, and concepts of categories. Here Stuessy introduces the reader to the development of concepts and philosophies central to taxonomy and includes copious citations to the

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seminal papers in the field. Part Two consists of two sections, with the first, robust section covering the different types of data (e.g. molecular, morphology, palynology, etc.) and the second, shorter section addressing the handling of data.

Plant Taxonomy functions nicely as a primary textbook for an upper-division undergraduate or graduate course in plant taxonomy. The book takes a theoretical approach and is not a “how-to” manual that provides detailed instruction on methodology of constructing either phenetic or phylogenetic classifications. *Plant Taxonomy* does provide a strong conceptual framework useful for incorporating exercises and case studies. Stuessy stated in the preface to the first edition:

"The view of taxonomy presented here is primarily a personal one. I have tried to determine what I do operationally as a practicing plant taxonomist and to view these activities within a meaningful conceptual framework."

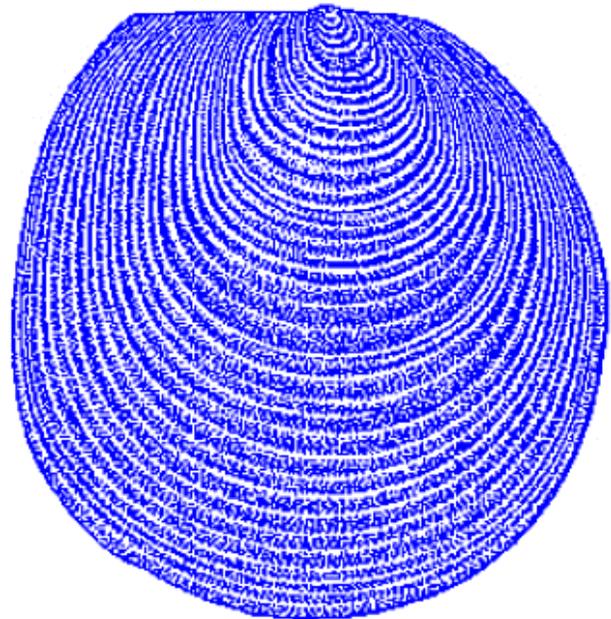
As a practicing plant taxonomist, Stuessy advocates an approach referred to as “explicit phyletics”. The text presents phyletics as a set of concepts derived from both cladistics and phenetics. This approach is by no means conventional and will spawn spirited discussions regarding when and how to use cladistics and phenetic approaches to produce explicit classifications.

In addition to being a viable textbook for a plant systematics course, *Plant Taxonomy* is also a useful addition to the shelf of a paleobotanist. In particular, the chapters on anatomy, morphology, and palynology provide a sound overview of data mined for characters used in the classification of both extant and fossil plants. In particular, the coverage of palynology is excellent and the clarification of the complexity of palynological terminology presented is helpful. The citations included in the chapter provide an excellent starting point for obtaining a grasp of the palynological literature.

The last chapter of the text, entitled “The presentation of

data”, is dedicated to instructing the reader when and how to use graphics for presenting taxonomic data. Being able to use graphics effectively is always a challenging skill to teach. A testament to how well Stuessy has elucidated this skill in this chapter can be seen by my personal, well-worn copy of the first edition of this text. Many of my colleagues have borrowed my copy so their own students can benefit for the advice Stuessy presents.

In summary, *Plant Taxonomy* is an essential addition to every plant systematist’s book shelf and I have found it to be an engaging textbook for students. Stuessy’s goal with this book is to introduce students with a basic knowledge of plant taxonomy to the philosophical and theoretical aspects of the field. In my opinion, he has succeeded in providing a text that accomplishes this goal.



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 Phil Novack-Gottshall (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.
- Australian Heritage Council. 2012. *Australia's Fossil Heritage: A Catalogue of Important Australian Fossil Sites*. CSIRO Publishing.
- Berta, A. 2012. *Return to the Sea: The Life and Evolutionary Times of Marine Mammals*. University of California Press.
- Brett-Surman, M.K., T.R., Holtz, and J.O. Farlow (Eds.). 2012. *The Complete Dinosaur*. Indiana University Press.
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- Brusatte, S.L. 2012. *Dinosaur Paleobiology*. Wiley-Blackwell.
- Deamer, D. 2011. *First Life: Discovering the Connections Between Stars, Cells, and How Life Began*. Univ of California Press.
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- Gangloff, R.A. 2012. *Dinosaurs under the Aurora*. Indiana University Press.
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- 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.
- Long, J.A. 2012. *The Dawn of the Deed: The Prehistoric Origins of Sex*. University of Chicago Press.
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- Raff, R.A. 2012. *Once We All Had Gills: Growing Up Evolutionist in an Evolving World*. Indiana University Press.
- Sánchez, M.R. 2012. *Embryos in Deep Time: The Rock Record of Biological Development*. University of California Press.
- Selden, P., and J. Nudds. 2012. *Evolution of Fossil Ecosystems*. Manson Publishing.
- Smith, A.B. and C.W. Wright. 2012. *British Cretaceous Echinoidea*. Monograph of the Palaeontographical Society #639.

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) or send review copies to Department of Biological Sciences, Benedictine University, 5700 College Road, Lisle, IL 60532.

CONGRATULATIONS!

2012 PS MEDAL AWARDEES



PS Medalist

J. William Schopf

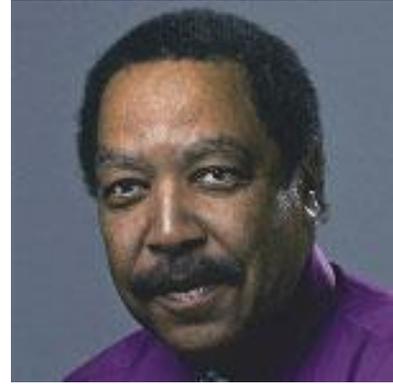
(Univ. of California, Los Angeles)



Schuchert Award

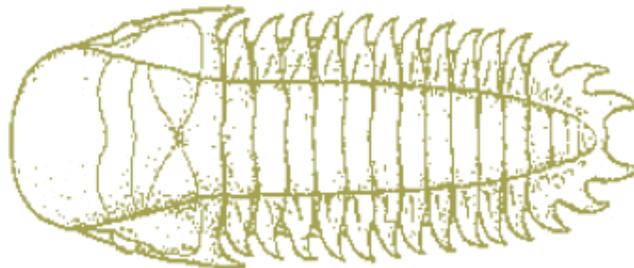
Gene Hunt

(Smithsonian Institution)



Strimple Award

George H. Junne, Jr.



2012 PALEONTOLOGICAL SOCIETY FELLOWS

Congratulations to the following, who were elected as Paleontological Society Fellows in 2012!

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Catherine E. Badgley

Carole S. Hickman

Farish A. Jenkins, Jr.

Pamela Hallock Muller

Roy E. Plotnick

Richard A. Robinson

Thomas R. Waller

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.

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Facebook coordinator: Phoebe Cohen

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

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THANKS TO THE ASSOCIATE EDITORS OF THE JOURNAL OF PALEONTOLOGY

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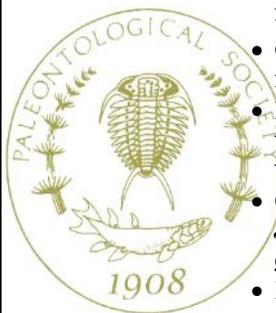
Michael Woodburne (Univ. of California, Riverside)

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. Labandiera, Melissa Light Schroeder, Richard Waite, Tracy J. Thomson, William C. Clyde, and Lauren Berg DeBey.

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- Discounted member registration rates for annual and regional meetings of the Geological Society of America (GSA). Participate in paleontological topical sessions and other programs at GSA meetings.
- Opportunities to participate in North American Paleontological Conventions.
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 - ◊ Student research grants
 - ◊ International research grants to support those in Eastern Europe and republics of the former Soviet Union (PaSIRP Sepkoski Grants)
 - ◊ Student NSF travel grants, solicited and distributed by the Paleo Society
 - ◊ Educational outreach to K-12 children and the general public
 - ◊ ... and more

Membership numbers
(updated Jan. 2012)

Year	Student	Regular	Retired	Emeritus	Spouse	Total
2012	398	983	125	94	8	1,608
2011	403	959	125	92	10	1,589
2010	295	940	134	89	10	1,468
2009	324	904	141	82	14	1,465

It's not too late to renew for 2013!



Ways the Society supports students

- Discount membership rates that include online access to both *Journal of Paleontology* and *Paleobiology*.
- Paleontological Society Student Research Grants for undergraduate and graduate student members of the Paleontological Society
- Discount rates on printed Journal and Short Course volumes for student members
- Student members get discount tickets for the Society luncheon at GSA meetings
- Student members are eligible for the Paleontological Society Student Poster Award at GSA
- Sponsorship at student networking events



UPCOMING EVENTS AND DEADLINES

W. Storrs Cole Memorial Research Award

Feb. 1, 2013

PS Student Research Grants

Feb. 15, 2013

PS Education and Outreach Grant

Mar. 29, 2013

PalSIRP/Sepkoski Grants

Apr. 1, 2013

Association of Applied Paleontological Sciences

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

2013 GSA sectional meetings

Northeastern: Bretton Woods, NH, Mar 18–20

Southeastern: San Juan, Puerto Rico, Mar. 20–21

North-Central: Kalamazoo, MI, May 2–3

South-Central: Austin, TX, Apr. 4–5

Rocky Mountain: Gunnison, CO, May 15–17

Cordilleran: Fresno, CA, May 20–22

2013 GSA Annual Meeting

October 27–30, Denver CO

- This coincides with the 125th anniversary of GSA!
Call for proposals due Feb. 1

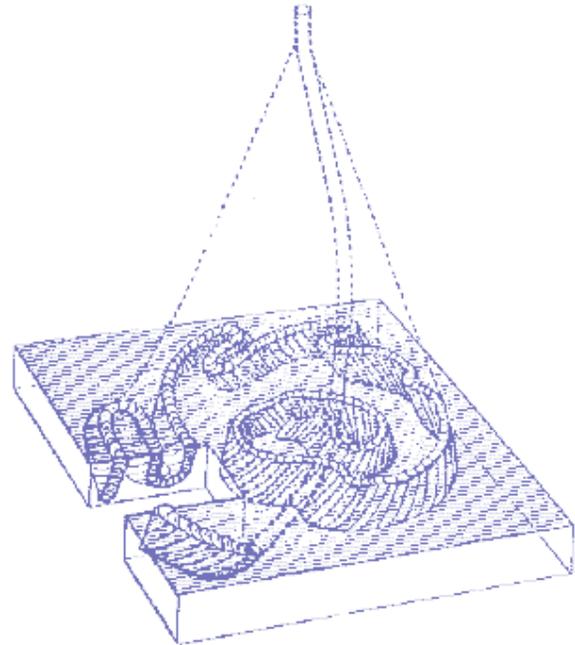
Future GSA annual meetings

2014 - Vancouver, BC, Canada: October 19–22

2015 - Baltimore, MD: November 1–4

North American Paleontological Convention (NAPC)

2014 - Gainesville, FL: February 15–18



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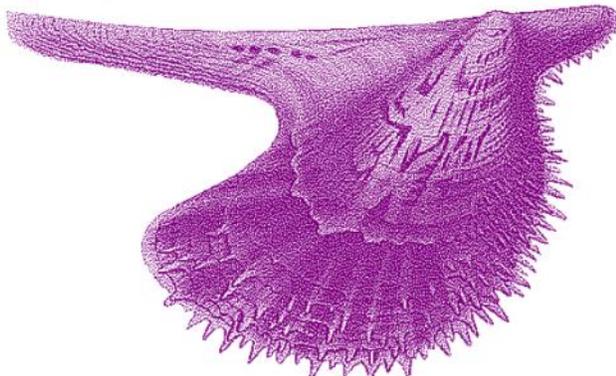
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Priscum

Newsletter of the
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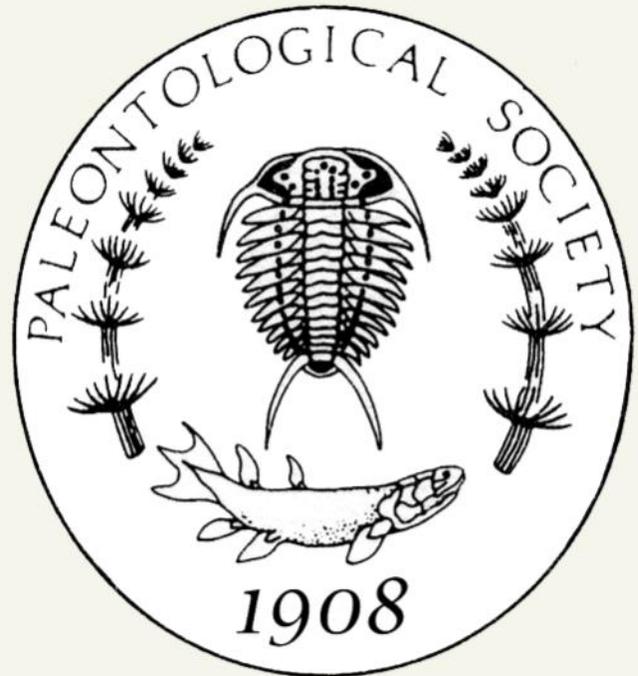
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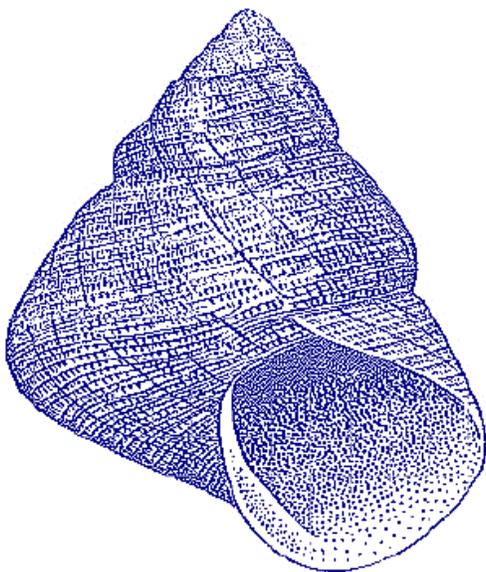
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IDEAS FOR *PRISCUM* CONTENT?



By Phil Novack-Gottshall, *Priscum* editor

Do you have any ideas for content for the *Priscum* newsletter? If so, please contact Phil Novack-Gottshall (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.