



Division of Comparative Biomechanics

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Mark Denny
Chair-Elect 2011-2013

Robert Full
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Tim Higham
Secretary 2012-2014

Laura Miller
Program Officer 2012-2014

Marianne Porter
Student/Postdoc Rep 2010-2013

Message from the Chair

Sharon Swartz, Chair.DCB@sicb.org

Fall is the best time of year in New England, with the sticky summer gone and the splendor of autumn color pulling us all away from our ostensibly more pressing academic pursuits. This fall will have seen a record three regional meetings of SICB's Comparative Biomechanics and Vertebrate Morphology Divisions – in the Northeast, the Southeast and the Southwest. These local meetings are a wonderful way to gather in a more casual and intimate setting than the large national meetings, and their strong student/postdoc focus is a great opportunity for young scientists.

The Southwest meeting, held for the first time this year, was hosted by California State University-San Bernardino October 13 and 14, with Tomasz Owerkowicz and Stuart Sumida as the organizing hosts. Dave Carrier from the University of Utah was invited to present a plenary lecture, "Anatomical indices of aggression: did human nature always have a dark side?" I know this must have stimulated a great deal of interest and discussion.

The Southeast meeting followed two weeks later, October 27, in at the College of Charleston in South Carolina, organized by Andrew Clark, Eric McElroy, and Jason Vance. Bill Kier, University of North Carolina, Chapel Hill, offered a keynote presentation, "Fast and Slow Squid Muscle: an Integrative Analysis of Fiber Evolution and Specialization."

And, finally, the grandparent of them all, our Northeast Regional Meeting, returned to its founding location at the University of Massachusetts-Amherst November 3, thanks to Betsy Dumont and Sheila Patek. This regional meeting has occurred almost annually for nearly twenty years now!

Elections

Since our last news update, we elected our next Divisional Chair, Mark Denny, presently waiting in the wings to take over from me at the end of this year's meeting in January. I'm thrilled that Melina Hale from the Department of Organismal Biology and Anatomy at The University of Chicago will be our next leader. I want to offer my thanks to our other outstanding candidates, and to the hard-working and energetic nominating committee, Miriam Ashley-Ross, Pat Hernandez, and Diane Kelly.

I also want to offer my sincere thanks to Marianne Porter, who has served as our Student/Postdoctoral Affairs Committee representative since January 2010, and who will retire from this position after the January meeting. Nick Gidmark, currently a postdoc with Tom Roberts at Brown, will be stepping up to this task. We appreciate the hard work and time Marianne has generously contributed, and look forward to the more great work from SPDAC.



Annual Meeting

This year's annual meeting, January 3-7, in San Francisco, promises to be one of SICB's greatest. The gracious and slightly masochistic Jake Socha will be once more herding the judges for the student oral presentation and poster competition (Thanks, Jake!). If you have not yet registered for the meeting, especially if you are an experienced judge, please consider offering some of your time for this vital service to our community of young scholars.

There are two Society-wide symposia at this year's meeting that may be of particular interest to DCB members, organized in part by DCB members. The first of these is When Predators Attack: Sensing and Motion in Predator-Prey Interactions, organized by Matt McHenry and Stacy Combes. The presentations will discuss sensory, motor, and integrative aspects of the topic, drawing on research on diverse terrestrial, aquatic and aerial animals. Two plenary talks will be featured, Escape responses in fishes by Paolo Domenici, CNR-IAMC, Localita Sa Mardini, Italy, and Prey detection by electroreception and strike in fish by Malcolm MacIver, Northwestern University.

The second exciting symposium DCB members may want to attend is Vertebrate Land Invasions: Past, Present, and Future organized by Alice Gibb, Miriam Ashley-Ross, Richard Blob, Tonia Hsieh. This integrative symposium brings together paleontological, ecological, physiological, and biomechanical perspectives to try to craft a newly integrative view of this complex and important evolutionary transition.

Upcoming conferences

Society of Experimental Biology

Annual Main Meeting 2013

The Society for Experimental Biology 2013 Annual Main Meeting will be in Valencia, Spain from July 3 to July 6, 2013. The meeting website is <http://www.sebiology.org/meetings/Valencia/Valencia.html>.

This meeting is open to members and non-members, and features sessions on Animal Biology, Plant Biology and Cell Biology. The Animal Biology Sessions will include the following topics: General biomechanics, Neuro-ethology and biomechanics of acoustic communication in vertebrates, Muscle-tendon biomechanics, Mechanisms and functions of intraspecific variation: from genes to behavior, Con-

servation Physiology of Marine Fishes, Challenges to respiratory gas transport What are the Limits to Avian Energy Expenditure?, Remodelling of physiological systems in response to environmental change, Aquatic life in a warmer and higher CO₂ world, and Stress in the Wild: linking conservation physiology with endocrinology.

Educational Sessions will include Linking research and teaching with social media, Using GPS Technology in research – challenges and opportunities, and Strategies for pursuing academic and non-academic careers.

Abstract submission opens in October, and Registration for the meeting will open in November.

Scientific Topics:

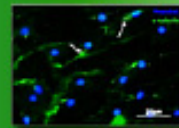
10th International Congress of Vertebrate Morphology

This triennial meeting will be held in Barcelona, Spain, July 8–12 2013, website <http://icvm2013.com/>. Abstract submission and registration are not yet open.

Plenary speakers will be: John Hutchinson, Royal Veterinary College, University of London; Thomas Johnson, Trinity College, Hartford, Connecticut; Colleen G. Farmer, Department of Biology University of Utah; Meike Kohler, Universitat Autònoma de Barcelona, Spain; and Rainer Schoch, Staatliches Museum für Naturkunde, Stuttgart, Germany.

Symposia (<http://icvm2013.com/index.php/programme>):

1. Evo-devo and vertebrate morphology: old wine, new bottles (and also new wine)
2. Reptilian Skeletal Biology: Investigations into Tissue Morphology, Development, and Evolution
3. The anatomical, biomechanical and energetic basis of hominin bipedalism
4. Interdisciplinary and Novel Approaches to Vertebrate Locomotion
5. Evolution of locomotion: reciprocal illumination from a diversity of approaches
6. Axial systems and their actuation: new twists on the ancient body of vertebrates
7. Quantifying evolutionary development using non-model organisms: integrating metrical frameworks, gene expression, and morphology



8. The Germinal Epithelium in Fishes
9. Vertebrate Limb Development
10. New advances in paleohistological studies
11. Evolution of the Rodents: Anatomy, Palaeontology and Functional Morphology
12. Functional morphology of muscle extracellular matrix
13. The Origin and Evolution of Turtles
14. Sticks, stones, and slopes: The link between substrate characteristics, morphology, and biomechanics
15. 3D-ilemmas: Dissemination, Data Management, and Intellectual Property Issues Surrounding Voxel Data
16. Next steps: Dynamics simulations in paleobiology
17. Inside the vertebrate nose: evolution, structure, and function

Dynamic Walking 2013

Dynamic Walking 2013 will be held at Carnegie Mellon University in Pittsburgh, Pennsylvania, from June 10 to 13.

The aim of this meeting is to provide insight into the fundamental principles that underlie legged locomotion and related dynamic behaviors. Central topics include energetics, stability and control, predictive models, empirical data with a conceptual tie in, and robot successes and failures.

Participants are split about evenly between students and professors, with a mix of researchers studying legged locomotion and designing walking robots. Keynote speakers and program for the 2013 are TBA.

Abstract submission window opens: January 10th, 2013. Deadline for abstract submission: February 10th, 2013. Notification of acceptance: April 3rd, 2013.

American Society of Biomechanics

The 2013 meeting of the American Society of Biomechanics will be held in Omaha, Nebraska, September 4-8. More information will be available at the meeting facebook page, <http://www.facebook.com/2013ASB?ref=stream>

Graduate Study

UNIVERSITY OF CALIFORNIA, BERKELEY

NSF Integrative Graduate Education and Research Traineeships (IGERT) in Bio- and Bio-inspired Motion Systems Operating in Complex Environments.

UC Berkeley Graduate Traineeships for biologists and engineers in the field of biomimetics.

Facilitated by the Center for interdisciplinary Biological inspiration in Education and Research (CiBER; <http://ciber.berkeley.edu>), trainees will learn to translate biological discoveries into engineered devices and apply new engineering approaches to biological research.

Trainees receive:

- * \$30,000 stipend
- * Full tuition, fees & health insurance
- * Mentoring by interdisciplinary faculty team
- * Unique CiBER-IGERT classes & seminars
- * Use of CiBER's research equipment and facilities
- * Access to industrial internships
- * International research abroad

Research areas in Motion Science include:

- * Mechanics of Motion Systems
- * Control and Learning
- * Function of Materials, Sensors and Actuators
- * Evolution of Motion Systems in the Natural World

Apply to the PhD program of a participating graduate program:

- * Integrative Biology
- * Molecular & Cell Biology
- * Bioengineering
- * Electrical Engineering & Computer Science
- * Mechanical Engineering
- * Civil Engineering
- * Psychology
- * Biophysics Graduate Group



Applications encouraged by November 30. For more information or to apply online please visit: <http://ciber-igert.berkeley.edu>. Professor Robert J. Full, e-mail rjfull@berkeley.edu

DCB Website

Our Divisional website is continuing its reorganization process, led by Secretary Tim Higham. If you have ideas you'd like to see implemented in the new website, or materials posted, please share them with one of Tim, and he'll see to it that they make their way to the new site. Stay tuned for a bigger and better DCB presence on the internet!

Looking forward to January in San Francisco!

Message from the Program Officer

Laura Miller, DPO.DCB@sicb.org

We have a fantastic program for the upcoming SICB meeting in San Francisco this January that includes two society wide symposia that should be of interest to the biomechanics community. The first symposia is titled "When Predators Attack: Sensing and Motion in Predator-Prey Interactions," organized by Matt McHenry and Stacy Combes. The second symposium is "Vertebrate Land Invasions: Past, Present, and Future," organized by Alice Gibb, Miriam Ashley-Ross, Richard Blob, and Tonia Hsieh. In addition, there will be over 200 contributed talks and 110 posters on topics related to biomechanics and morphology. As usual, this year's schedule will include many sessions on locomotion, and some of the other topics covered will include biomaterials, growth and scaling, adhesion, burrowing, and fluid pumping. This will be the second year that DCB will sponsor 5 minute "Lightning talks" with DVM. If you are presenting at the meeting, remember that you are required to register by November 9th.

This year's meeting in San Francisco should provide many opportunities to enjoy excellent food and drink. As you may have noticed, SICB received a great deal on the hotel. If you book through the meeting website, it is only \$125/night at the Hilton San Francisco Union Square, available January 2-8. The San Francisco International Airport is only 13 miles away, and we recommend www.SuperShuttle.com for low cost transportation from SFO to the Hilton. Please plan to spend a little more on food and entertainment, however, as this is the tradeoff for holding the meeting in such a world renowned city. Please refer to the "[Notes from the Under-](#)

[ground: Travel and City Information](#)" on the meeting website for restaurant recommendations. Finally, please plan to stay for the SICB Society-Wide Wine & Cheese Reception in Honor of Students and Postdocs from 4:00-6:00 pm on Monday, January 7th. See you in San Francisco!

Message from the Student/Postdoctoral Affairs Committee Representative

Marianne Porter

I hope everyone is looking forward to January 3-7 th, 2013 in San Francisco. If you want to get early-bird fees, register by December 3rd, 2012.

Check out the [Notes from the Underground](#) for a nice summary of hotels and travel to the meeting.

The meeting is going to be packed with great science and also useful workshops. This year the Student/Postdoctoral Affairs Committee will be hosting a workshop on how to give a good elevator talk. This is the short abstract of your research that could be given to anyone in an elevator. These short research descriptions are also useful at meetings, as well as during grad school, postdocs, faculty, and industry interviews. Please come to the workshop for helpful tips and practice giving your talks to other students, postdocs, and faculty. There are two Broadening Participations workshops that would be useful to students and postdocs on "Negotiating your first job or postdoc" and "Effective presentations: Performance and visual aids." Also keep your eyes open for workshops by the Public Affairs Committee workshop, NSF, and also the Teaching and Learning X workshop "Vision and Change in Introductory Biology." Please email me if you have any questions (mepor@vassar.edu).

Message from the Secretary

Timothy Higham, Secretary.DCB@sicb.org

I have thoroughly enjoyed my first year as secretary! I am looking forward to the meeting in San Francisco!

As I mentioned in the last newsletter, the DCB website is in need of repair. The content is getting old and needs a breath of fresh air. In addition to new content, I am exploring the possibility of creating an external site that could be linked to the main SICB website. A flashy website would help bring attention



to our outstanding division and help recruit additional members, including those outside of SICB. I have already been discussing this with several people, but more input would be fantastic. Please contact me (Secretary.DCB@sicb.org) if you have any suggestions! I will also be discussing this in SF.

I am also interested in finding new ways to promote DCB. Perhaps this would be a good time to develop a DCB logo. We could then sell t-shirts at the annual meeting and the regional meetings. They will be appearing on eBay in no time!

1st Annual Regional Meeting in the SW

There is no shortage of comparative biomechanics in the Southwestern United States. This is a really exciting time to be in the area, and the number of researchers studying biomechanics appears to be increasing at a rapid rate. I was fortunate to attend the inaugural SW DCB/DVM regional meeting, which was held in October at California State University, San Bernardino. The meeting, organized primarily by Tomasz Owerkowicz, was a tremendous success. With 30 talks and 5 posters, the day was packed. The topics were extremely diverse, ranging from the control of aerial turning in pigeons to the pathology of cervical vertebrae in ceratopsian dinosaurs. The day was capped by a thought-provoking lecture by David Carrier (University of Utah) who discussed anatomical indices of aggression. On behalf of the members of DCB, I would like to thank Tomasz and Stuart Sumida for putting forth the effort to organize this great meeting. This will be an ongoing tradition. I look forward to 2013, which is currently planned for UC Riverside.



Regional Meeting in the Southeast

This was a great year for regional meetings. Andrew Clark, Eric McElroy, and Jason Vance co-organized the 5th SE DCB/DVM regional meeting at the College of Charleston. It proved to be an exciting and successful day of science! The meeting was comprised of 18 fascinating oral presentations delivered by undergraduates, graduates, postdocs, and faculty, including an inspiring keynote speech delivered by Dr. William Kier (UNC Chapel Hill) titled, *Fast and Slow Squid Muscles: an Integrative Analysis of Fiber Evolution and Specialization*. Presenters represented research laboratories from the College of Charleston, Coastal Carolina University, Clemson University, Valdosta State University, Georgia Southern University, and University of North Carolina at Chapel Hill. Presentation topics included aerial locomotion, electrostatic spider webs, mosquito drinking, waterfall-climbing gobies, lizard bipedalism and tail autonomy, and the tensile mechanics and morphology of Spanish moss and fish skin! Coffee breaks, lunch, a museum visit, and a group photo were interspersed throughout the talks. After the meeting, many of us met up for dinner at Fleet Landing for southern coastal cuisine, followed by some good times at the Southend Brewery! Financial support for this meeting came from the registrants and the Department of Biology at the C of C.

