



## Division of Comparative Biomechanics

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### **DCB Officers & Representatives**

#### **Robert Full**

Chair 2006-2011

#### **Sharon Swartz**

Chair-Elect 2009-2011

#### **Miriam A. Ashley-Ross**

Secretary 2006-2012

#### **Stephen Deban**

Program Officer 2010-2012

#### **Marianne Porter**

Student/Postdoc Representative  
2010-2012

#### **Adam P. Summers I**

CB Editorial Board Representative  
2007-2012

### **Message from the Chair**

*Robert Full*

#### **Membership**

Three years ago we created a new division of comparative biomechanics. During this time we adopted a set of bylaws, held our first elections and last Spring we held our second set of elections. Last year we had approximately 500 members. We had 100 more members join this year. So, we have over 600 members! When the demographics are broken down relative to other divisions, more of our new members consist of students, post docs and beginning faculty. A record 54 students competed for the best paper and poster awards this year, up from 33 last year. All this bodes well for the future of comparative biomechanics.

#### **Meeting**

The Seattle Meeting was as successful as the Boston Meeting. There were 35 sessions related to biomechanics with 196 contributed papers and 68 posters. DCB sponsored an outstanding symposium on "Mechanics without Muscle: Evolutionary Design of Macrophytes" organized by Patrick Martone. We thank Patrick and others for their efforts. We hope that this symposium initiates a movement that opens comparative biomechanics to the world of plants. Now we encourage you to integrate discoveries on plant biomechanics into the present topics such as biomaterials, aero- and hydrodynamics and scaling.

#### **National Science Foundation**

William Zamer reported to our Executive Committee that NSF is moving forward with outlining how to implement the Grand Challenges we have been suggesting and publishing in our SICB Journal, Integrative & Comparative Biology. NSF wants us to translate these challenges into specific questions. Specifically, they want to know that if these questions are funded as a program, what infrastructure and resources are needed? What existing theory should be applied? What new theory is needed? Who needs to be involved? How do we broaden the national conversation and the stakeholders?

The workshop at the Seattle Meeting was just the beginning of discussions about how to implement the Grand Challenges. The speakers included Executive Board members from six other societies, plus the representative authors from the Grand Challenges papers in Integrative and Comparative Biology.



## **Establishment of The Carl Gans Award**

The Carl Gans Award has now been approved by the Executive Committee. Under the guidance of Robert Dudley and with the great generosity of Carl's brother Leo and Sandra Gaunt, the Carl Gans endowment met and greatly exceeded the \$25,000 minimum required to fund a new award. The Gans endowment now stands at over \$35,000. Going from inception to full funding of this award in less than a year is remarkable feat. I want to thank everyone for their generous donations, especially given this time of financial hardship. This sadly coincided with the death of Professor Gans in November. However, this award insures a lasting legacy on his behalf. We will issue a call for nominations in Spring 2010 with a summer deadline.

An annual prize will be given either to an outstanding young investigator for distinguished contributions to the field of comparative biomechanics and functional biology (eligible candidates are those who have completed their doctorate within the past seven years), or to any investigator for the single best contribution of the past year to the literature of comparative biomechanics and functional biology, including research papers, review articles, and published books. The formal title for this award is "The Carl Gans Award," in recognition of Carl Gans' scientific career and editorial contributions to animal morphology, biomechanics, and functional biology. The Chair of the Division shall appoint an Award Committee consisting of at least three divisional members with diverse interests to serve as judges. The Chair of the Division will designate one of the members as the chair of the Award Committee. Committee members will normally serve for no more than three years, with at least one member being replaced each year. Candidates may apply directly or be nominated, but both types of candidates will be evaluated equivalently. Applicants shall submit to the Chair of the Award Committee either a short description of their work together with

selected reprints (outstanding young investigator), or a copy of either a research paper, review article, or book (best contribution to the literature). A curriculum vitae must also be submitted, along with three letters of support. Nominators must arrange for these same materials (except that only two additional letters of recommendation are required) to be submitted to the Committee. The Committee may recommend for approval one candidate to the Chair of the Division, who may authorize reimbursement of appropriate expenses incurred by the winner in attending the annual SICB meeting. The awardee will be presented with a certificate signed by all current Divisional officers. The Chair may also authorize a research award to further the following themes: 1) general field and laboratory work in comparative biomechanics, 2) collaborative work with scientists in Israel, 3) travel to visit Ben-Gurion University (Sde-Boqer Campus) and the Gans Library, and to conduct fieldwork in Israel, and 4) support of collaborative international research.

## **New IGERTs in Biomechanics**

Two new Integrative Graduate Education and Research Traineeships (IGERTs) are available in biomechanics. Please encourage your best undergraduates to apply.

1. IGERT: Biological and Bio-inspired Motion Systems Operating in Complex Environments

UC Berkeley

PRINCIPAL INVESTIGATOR: Robert J. Full;  
Co-PIs: Ron Fearing, Mimi Koehl.

This IGERT will train biology and engineering students how to learn from natural design – a process termed biological inspiration. In particular, trainees will discover principles that underlie how organisms move in complex environments, and learn to use those principles as inspiration to design human-engineered systems. Four focus areas for research opportunities include the mechanics of systems that lo-



comote, their control mechanisms, the structure and function of their materials, and their evolution. A three-stage training program integrates with the research focus and is facilitated by a new Berkeley center – **CiBER** – the **C**enter for **i**nterdisciplinary **B**iological-inspiration in **E**ducation and **R**esearch. Stage 1 offers a customized core curriculum to develop a common scientific language, and to discover opportunities to contribute to and benefit from bio- and bio-inspired motion systems. Trainees take a new research-based teaching laboratory where teams of biology and engineering students work together to make original biomechanical discoveries. This experience transitions them into Stage 2 where fellows begin research rotations and international experiences at leading European institutes guided by a “Bionics” network. In Stage 3 trainees learn the application of discovery through entrepreneurship courses and internships. Developing direct pipelines to a diverse group of undergraduates will encourage participation of women and underrepresented groups. Trainees will advance the field of motion science with research leading to novel inventions that may never have been considered by engineers such as gecko-inspired hairy adhesives, artificial muscles, new prostheses, and search-and-rescue robots. By sharing these advances with the public, non-scientists will see more clearly why we must preserve the diversity of species and their environments - before their secrets are lost forever.

## Links

CiBER-IGERT (Integrative Graduate Education and Research Traineeship)

<http://ciber-igert.berkeley.edu/>

CiBER – the Center for interdisciplinary Biological-inspiration in Education and Research

<http://ciber.berkeley.edu>

A Crucible for Biological Inspiration

<http://sciencematters.berkeley.edu/archiv>

[es/volume5/issue36/story1.php](http://sciencematters.berkeley.edu/archives/volume5/issue36/story1.php)

Running, Swimming, and Flying for Science

<http://sciencematters.berkeley.edu/archives/volume5/issue36/story2.php>

2. Integrative Training in Motor Control and Movement.

University of Chicago

PRINCIPAL INVESTIGATOR: Melina Hale

This Integrative Graduate Education and Research Traineeship (IGERT) project builds links broadly across Chicago’s scientific community to develop an integrative training program for U.S. doctoral students in motor control and movement. To develop an integrative understanding of movement, it is necessary to address both the biology and the engineering of the systems involved and how they work together. Students from graduate programs at the University of Chicago and Northwestern University will obtain the biological and engineering backgrounds required to develop the integrative approach needed to take the field in new directions. Educational tools include a boot camp, a three-quarter common core curriculum, a discussion series, required laboratory rotations, and workshops and seminars at the Field Museum. The program will involve outreach to local Chicago-area schools, with training for students and faculty in the development and conduct of effective outreach. Mentoring of undergraduate students by IGERT graduate trainees will be done in close collaboration with local universities that primarily serve underrepresented minorities in the Chicago area. A trans-institutional website will highlight opportunities and results related to this program’s IGERT goals and provide resources for teachers and students. IGERT is an NSF-wide program intended to meet the challenges of educating U.S. Ph.D. scientists and engineers with the



interdisciplinary background, deep knowledge in a chosen discipline, and the technical, professional, and personal skills needed for the career demands of the future. The program is intended to catalyze a cultural change in graduate education by establishing innovative new models for graduate education and training in a fertile environment for collaborative research that transcends traditional disciplinary boundaries.

Links

W e b s i t e :  
<http://www.igert.org/projects/229>

## Underrepresented Minorities

I continue serving on the Board of ABRCMS, The Annual Biomedical Research Conference for Minority Students. ABRCMS is the largest multidisciplinary student conference in the United States. Each year, the conference attracts approximately 2,600 individuals, including 1650 undergraduate students, 300 graduate students/ postdoctoral scientists and 750 faculty and administrators.

The undergraduates are juniors and seniors looking for graduate schools. They have decided to pursue biological research and not medical school. These are exceptionally qualified students. They are interested in our research in particular. I gave the keynote address at the meeting two years ago and the response was incredible.

We need volunteers to:

1. Offer to give a talk at the annual meeting. The experience completely changed my thinking about issues of access and diversity.
2. To act as a representative for the faculty members of the society and the students who wish to attend this meeting.

If you are interested, please let me know.

## Relevant conferences

### Society of Experimental Biology

Annual Main Meeting 2010. The SEB is pleased to announce that in 2010 its Annual Main Meeting will take place at the Clarion Congress Hotel in the city of Prague. Open to members and non-members alike, the meeting will give you the opportunity to attend cutting edge scientific and education sessions as well as the chance to network with a range of biologists from all over the world.

In particular, three sessions are relevant to our division.

#### *Function and Control of Elastic Systems*

Dates: 2nd July (pm only) - 3rd July

Organized by: Thomas Roberts

Contact: [Thomas\\_Roberts@brown.edu](mailto:Thomas_Roberts@brown.edu)

#### *General Biomechanics*

Dates: 30th June - 2nd July (am only)

#### *The Challenge of Measuring Energy Expenditure: Current Field and Laboratory Methods*

Dates: 3rd July

## The American Society of Biomechanics

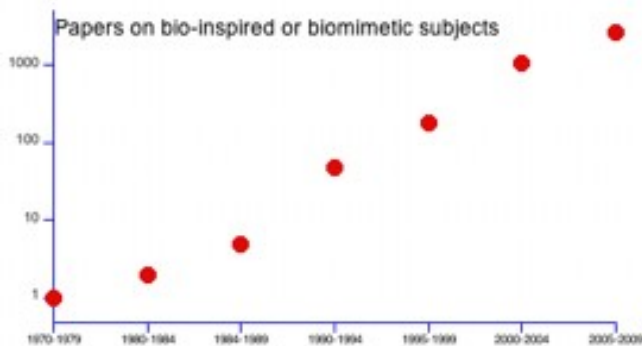
August 18-21, 2010. The 33rd Annual Meeting of the American Society of Biomechanics. Providence, Rhode Island. Hosted by Brown University and Rhode Island Hospital



## Message from the Chair-Elect

Sharon Swartz

I'm honored to write to the DCB membership for the first time, and excited to think about stepping up to follow Bob as the Division's next Chair. The Division of Comparative Biomechanics has gotten off to a fabulous start at an opportune time in our discipline's maturation. Lest you wonder whether comparative biomechanics is truly gaining momentum, I'll share with you a bit of analysis I put together recently for an unrelated purpose; I compiled some information regarding the number of publications on topics relating to biomimetics or bioinspiration since 1970.



As you can see, the growth in these publications has been exponential! Some proportion of this explosion comes from our membership and others like us, some from engineers, physicists, and mathematicians, and others. As we head from the infancy of our division into something like toddlerhood, I encourage us all to think creatively about ways to bring a more diverse sampling of those working in biomechanics broadly under the SICB umbrella. We have both a great deal to offer by and a great deal to gain from increasing our interactions and collaborations with those in the physical and mathematical sciences. I'd love to see each of us aim to recruit a new member who has an affiliation in a field that relates to

but is outside of biology over the next few years – think of the enrichment we'd experience from bringing the insights, tools, and creative energy of new fields into our comparative biomechanical efforts!

I look forward to serving as your Chair, and hope to see some of you at the American Society of Biomechanics Meeting in August in Providence!

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## Message from the Program Officer

Stephen Deban

Greetings and thanks to DCB members for entrusting me with the job of program officer. First I would like to thank Frank Fish for his hard work as outgoing DCB Program Officer and for his words of advice and encouragement. In putting together the programs for future meetings I will try to follow Frank's example and find an appropriate home for each person's talk in a session suited to it at an ideal time. Failing that, I promise not to toss your talk that doesn't really fit anywhere into a session on the last morning called "Other Stuff." Instead I will make an effort to call the session something more informative like "Other Cool Stuff," or maybe "Adaptation."

I consider the Seattle meeting and its DCB program a great success, which I can say with all due modesty because I had nothing at all to do with putting it together. DCB sponsored a symposium on the biomechanics of plants titled "Mechanics without Muscle: Evolutionary Design of Macrophytes" that was organized by Patrick Martone. At the DCB business meeting in Seattle, Patrick reported that the symposium was very successful. Jeff Walker and Rita Mehta also organized a symposium on the evolution of fish body and fin shape with multidivisional support, including DCB.

The Seattle meeting also had a record number participants for SICB and the most DCB presentations in our short history, making it an exciting and interesting meeting for us biome-



chanists. Given our division's growth we can expect the 2011 Salt Lake City meeting to be even better.

On the topic of the Salt Lake City meeting, DCB is sponsoring two symposia, "Biomimetics: Applying mechanical design to experimental biology," organized by Brooke Flammang, and "Biomechanics and Behavior of Gliding Flight," organized by Robert Dudley. There is also a potential late-breaking symposium being spearheaded by Mike Sears, "A synthetic approach to the response of organisms to climate change: the role of thermal adaptation."

Looking ahead to the 2012 meeting and beyond, I encourage you to please contact me by phone or email if you have ideas for DCB symposia. Anyone can propose a symposium, including students (along with full members). Ideas can be at any stage of development, from cocktail napkin to NSF proposal. Where are the frontiers of our knowledge? What new approaches can we highlight? Are there classic problems or timeless themes that we can revisit? DCB can sponsor symposia solely or we can explore cosponsorship with another division as we have done in the past.

As you know, SICB is *the home* of comparative biomechanics and has been since before DCB was started. Here is a reminder of symposia at SICB meetings in the five years before Seattle that have had biomechanical themes: Biomechanics and neuromuscular control, Evolution of feeding mechanisms in vertebrates, Symposium honoring Steven Vogel, Ecomorphology and flow regimes, Electromyography: interpretation and limitations, Sensory Biomechanics, and Biomaterials. Those of you who organized these symposia are officially off the hook. For the rest of us this list can hopefully help guide us in designing future symposia.

I look forward to your ideas for symposia and to your abstracts this coming Fall.

### **Message from the Graduate Student/Postdoctoral Representative**

*Marianne Porter*

*Note from the DCB Secretary: Actually, you'll have to check the society-wide section of the newsletter for Marianne's contribution. It was deemed to be so excellent that we couldn't keep it to ourselves in DCB, and it had to be shared with the whole society membership. It's a most informative column with accumulated wisdom about how to go about searching for a good postdoctoral position.*

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### **Message from the Secretary**

*Miriam Ashley-Ross*

Wow, what a great meeting in Seattle! In the words of the inimitable Pat Hernandez, the SICB Annual Meeting is always "Research Viagra," and Seattle was no exception. Everywhere I looked, heads always seemed to be bent over laptops, earnestly discussing data. Collaborations were formed, progress was made, spirits were "lifted" – in case of research inspiration lasting more than 4 months, submit a grant to NSF! Seriously, DCB made a great showing, with two symposia solely or co-sponsored, (seemingly) a zillion talks all in conflicting sessions, and multitudes of posters that were a challenge to see due to the massive crowds. Shamelessly plagiarizing Yogi Berra, "No one goes to the poster sessions anymore. It's too crowded." One of the symposia, organized by Patrick Martone on plant biomechanics, represents one of the first attempts by the society to transcend its ASZ roots, and broaden participation by plant researchers.

Congratulations go to our winners of the Best Student Paper competitions. Yonatan



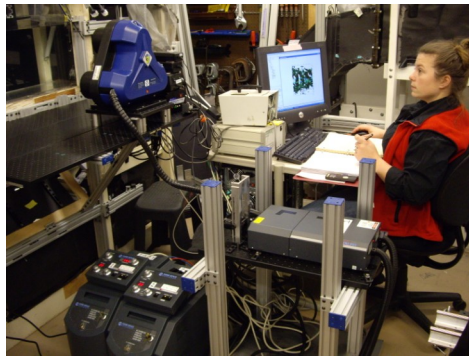
## SICB Newsletter

Spring 2010 Issue

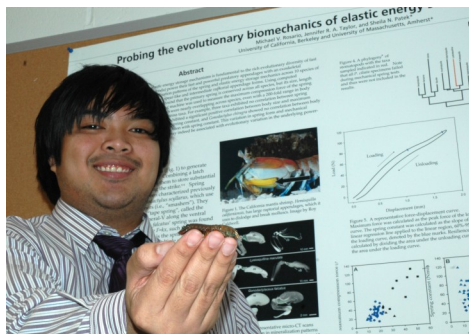
Munk of the University of California at Berkeley won for Best Oral Presentation; his talk was entitled, "Comparative gliding performance in wingless gliding ants and other arthropods." Yonatan had great footage of dropping ants from very tall tropical trees, as you can imagine from his picture!



In the Best Poster Presentation category, we had a tie, between Brooke Flammang of Harvard University and Michael Rosario of the University of Massachusetts at Amherst. Brooke's poster was on "Instantaneous volumetric wake analysis of locomotion in teleost fishes," and demonstrated the cutting edge in DPIV analyses of swimming fish.



Michael's poster, "Probing the evolutionary biomechanics of elastic energy storage in mantis shrimp" showed patterns of correlation between material properties and design of the raptorial appendage and prey capture techniques.



Congratulations Yonatan, Brooke and Michael! Students are the future of our Division, and such great presentations elevate all our efforts.

At the meeting, our new officers were formally installed. Steve Deban succeeds Frank Fish as Program Officer, and Sharon Swartz is our Chair-Elect until the 2011 Annual Meeting, at which time she will take over as Chair, succeeding Bob Full. We also have a new Graduate Student/Postdoctoral Committee representative: Marianne Porter, currently a postdoc at Vassar College. Now all that remains is for you, the membership, to rid yourselves of Yours Truly, and the transformation of DCB from Interim Organization to Fully Functional, Self-Sustaining Division will be complete! Alas, we must wait over another year for that happy day – secretarial elections won't take place until Spring 2011. But all is not dismal on the election front! According to our divisional bylaws, each Chair-Elect serves a two year term before taking over as Chair. That means that we need to select our next Chair-Elect so that he/she is ready to step into that office when Sharon ascends to Chair. Luckily, we've got two great candidates, Mark Denny and Emily Carrington, for the position. Please read their statements (below), and make sure to vote in the election, which will be held online in April.

Improvements have been made in the Researchers Database department, so it's no longer limited to  $N = 1$ . However, we still lag behind other divisions in representation! How can we let ourselves be beat by the likes of DEE?! We want to win! So, please help DCB crush the competition, and if your name isn't in the database, please e-mail me a short description of your research, along with a nifty picture related to it, for inclusion. It's a great tool for attracting potential students, and only takes a couple of minutes – most of us already have websites, and it's simple to copy the most salient points from that, and send them along.

Have a productive summer as we anticipate



the meeting in Salt Lake City that will surely "raise" the bar higher!

## Minutes of the Division of Comparative Biomechanics business meeting, January 4, 2010

The Division Chair, Bob Full, called the meeting to order. Membership in DCB now stands at over 600 (compare to 151 when the Division was first formed). DCB is making a strong showing at the Seattle meeting, being represented in 35 contributed paper sessions, and being the identified division on 196 papers and 68 posters. 58 students entered the Best Student Paper competition (both oral and poster presentations). DCB sponsored the Mechanics without Muscle: Evolutionary Design of Macrophytes symposium, organized by Patrick Martone (which is significant because it broadens our participation/audience to plant people), and also co-sponsored a symposium with DVM organized by Jeff Walker on the Evolution of the Fish Body Plan.

Bob reported on things that had come up in the meeting of the SICB Executive Committee. Bill Zamer of NSF once again addressed the committee; last year he asked for input from SICB on the future of organismal biology, specifically what we see as the "grand challenges in biology" that can only be answered through organismal approaches. SICB's response directly led to the Grand Challenges write-up in Integrative and Comparative Biology. However, that was just the starting point, and now Zamer wants the Society to continue identifying directions and to take the next step – translate those Grand Challenges into specific questions, and what resources would be needed to answer them. Additionally, we should focus on broadening our approaches to involve non-biologists (e.g., engineers), and creatively link research

questions with strengthening undergraduate education (especially broadening the participation of minorities). Zamer promised that information on specific programs to address the Grand Challenges would appear soon.

The SICB Society officers entered the room and were introduced. Rich Satterlie, the Society President, encouraged everyone to attend the Grand Challenges Workshop at the meeting.

Ron Dimock, Society Treasurer, encouraged all members to consider making contributions to SICB's various "unrestricted funds." These mostly support specific scholarships and awards, and many of them are severely underfunded. Ron also informed us that an "error" was made by the hotel that resulted in them overcharging us for beer at the Welcome to Seattle social; the price for beer would be correspondingly reduced at the Dessert Social.

Brian Tsukimura, the incoming Society Program Officer, reminded everyone that proposals for symposia for the Charleston meeting would be due in August.

After the Society officers left, Bob reiterated that those who could attend the Grand Challenges Workshop should do so, in order that the Comparative Biomechanics viewpoint would be represented.

Several of the unrestricted funds of the Society are in very bad shape indeed, and Bob specifically mentioned the Hyman, Skinner, and Davis funds as ones that could use our help.

On a happier note, the new DCB-centric Gans Award is ready to go! The Gans family matched member donations on a 2-for-1 basis, and the fund raised \$34,400 in one year! Sadly, Carl Gans died last November; there will be a call for nominations for the first-ever Gans Award this coming summer. The award will recognize a unique pub-





lished contribution in comparative biomechanics for the year; further details regarding the award can be found on our Division page on the SICB website.

NSF is supporting the field of Comparative Biomechanics with 2 IGERT grants. One is at the University of Chicago, administered primarily by Melina Hale. This program is called Integrative Training in Motor Control and Movement. The other IGERT is at UC Berkeley, administered by Bob Full. This program is called CIBER, and integrates engineering approaches with biology (<http://ciber.berkeley.edu/cgi-bin/twiki/view/CIBER/WebHome>).

Bob encouraged the DCB membership to do more to recruit underrepresented minorities into our field, and get them active in SICB. If interested, please contact him for information – either to go to and present at minority-focused meetings, or to serve as a mentor for minority students at their first SICB meeting.

Our outgoing Program Officer, Frank Fish, spoke next. He reported that the Macrophyte symposium had been well received. DCB will be sponsoring 3 symposia for the 2011 meeting: one on Gliding flight (organized by Robert Dudley), one on Bio-inspired designs in comparative biology (organized by Brooke Flammang), and one on Central pattern generators (with the catchy title, "I've got rhythm").

Frank encouraged everyone to think about organizing a symposium. The paperwork to do so is on the SICB website. He offered the following advice to budding organizers:

The symposium must have broad appeal in its subject matter.

Don't pick as speakers people who always come to SICB. We should use this as a recruiting tool – invited speakers will see how great the meeting is, and

keep coming back, possibly bringing in their colleagues as well.

Think about inviting international speakers to increase the visibility of the symposium.

Think about diversity in your speakers list. Pick speakers at different career levels. NSF and other funding agencies are very interested in seeing diversity.

You must apply for external funding to support your symposium. You don't necessarily have to apply to NSF – there are other sources that could be tapped as well. Also, you don't have to win funding in order to have your symposium, but SICB requires that you apply.

You should make an honest estimate of attendance. This is crucially important in assigning rooms.

You have to build a webpage for the symposium (the SICB webmaster, Ruedi Birenheide, will assist you in this) to publicize it.

Talk to the Program Officer about possible "extras" for your symposium. For instance, do you want to have a social associated with it? A roundtable discussion?

Remember that Integrative and Comparative Biology has the first right of refusal to publish the symposium.

Keep your number of speakers reasonable (10 or 12 for an all-day symposium). Remember that you can have associated paper sessions, which have the non-trivial perk of getting first priority for scheduling!

Frank claimed that scheduling problems in the contributed paper sessions were because we're too successful as a division – there were so many talks that having conflicting sessions was unavoidable, and it also led to such head-



scratching moments as the multiple fish talks in the "Non-piscine swimming" session.

Finally, Frank claimed that being Program Officer was the "worst job one could ever really like," and resignedly passed the baton to our incoming PO. Bob Full presented Frank with a parting gift in recognition of his service to the Division.

The Secretary, Miriam Ashley-Ross, introduced the new officers elected last spring: Steve Deban is our new Program Officer, and Sharon Swartz is our new Chair-Elect. Sharon will take over as Chair at the end of the Salt Lake City meeting in 2011. In order to bring our still relatively new division into compliance with our by-laws and the society election schedule, we will have to have another election this spring for a Chair-Elect who will take office when Sharon becomes Chair.

Our divisional Researchers Database is still woefully thin; all are encouraged to send the Secretary ([rossma@wfu.edu](mailto:rossma@wfu.edu)) a short paragraph describing your research interests and a photo of either your experimental organism(s), or a technique you use. It's a great tool for recruiting students and fostering collaborations.

Patrick Martone, organizer of the Mechanics without Muscle: Evolutionary Design of Macrophytes symposium, reported that it went well, and that there were some non-plant people in the audience. He made a plea that we, as a division, think more explicitly about integrating plant studies into form-function symposia. Currently, there is no meeting in the US that focuses on plant biomechanics, and that most of the workers in that field go to the SEB meeting.

Beth Brainerd raised the possibility of a joint SICB/SEB meeting, but acknowledged that the timing of such a meeting would be sticky, and that there would need to be a leader of the effort on the SEB end.

Richard Zimmer, currently serving as Program Officer in Integrative Organismal Systems at NSF spoke next. He first stated in no uncertain terms that there are No More Stimulus Funds – they've all been spent. However, he also encouraged DCB members to investigate the "Life in Transition" program – this is extra money that NSF has to award. To apply, grant proposals should go to their regular review panel, but the title of the grant should be prefaced by "LIT:". There are a couple of aspects of the LIT program that might fit into biomechanics research: (1) what are the principles and mechanisms of resiliency and sustainability used by living organisms in the face of environmental change, and (2) positive and negative feedback mechanisms used by organisms and ecosystems, and how those interact. The "Dear Colleague" letter describing the program is available online.

Zimmer also informed us that NSF won't be accepting 2 page updates to grant applications anymore, because NSF determined that 95% of them were addendums to the proposal that allowed PIs to get around the 15 page limit. If you have some new substantial information that you want the review panel to have, contact the program director and tell them what it is, and he/she will attach it to the proposal.

The Fall NSF panels had a record number of proposals to deal with; hence the funding rate was low. Zimmer therefore encouraged everyone to make sure that your proposal is top-notch before submitting it.

If you include funding for a postdoc in a grant, you need to have an explicit



“postdoc plan” – what you as a mentor will do to foster their career.

For the Broader Impacts criterion on grant proposals, it’s not enough anymore to say that grad students and undergrads will receive research training. Be creative.

NSF is always trying to recruit new Program Directors and panelists!

Several upcoming meetings are related to biomechanics:

SEB 2010, held in Prague in July; one session is on Function and control of elastic systems.

American Society of Biomechanics, held in August, in Providence, RI

World Congress of Biomechanics, held in August, in Singapore

DCB/DVM Regional Meeting, at Virginia Tech (likely in October)

Adam Summers announced two courses being offered this summer at Friday Harbor Labs: Biomechanics, June 14 – July 16; and Functional Morphology and Ecology of Marine Fishes (July 10 – August 20). Applications are due February 1, 2010. Further information can be found at <http://depts.washington.edu/fhl/studentSummer2010.html>.

Beth Brainerd announced that the Journal of Comparative Zoology A was now welcoming methods-centric papers for publication.

The business being exhausted, the meeting was adjourned.

Miriam Ashley-Ross, Secretary

## Candidates for Election

### Candidates for Chair-Elect

#### Mark W. Denny

**Current Position:** DeNault Professor of Marine Sciences, Hopkins Marine Station, Stanford University

**Education:**

B.Sc., Duke University, 1973; Ph.D., University of British Columbia, 1979; Postdoctoral Fellow, University of Washington 1979-1981

**Professional Experience:** Staff Biologist, Smithsonian Tropical Research Institute, 1981-1982; Stanford University, 1982-present



**SICB Activities:** I organized the first SICB (then ASZ) symposium on “Biomechanics” in 1982. Most recently, I coauthored (with Brian Helmuth) an opinion piece on SICB’s Grand Challenges (“Confronting the physiological bottleneck: A challenge from ecomechanics” *Integr. Comp. Biol.* 49: 197-201).

**Research Interests:** Biomechanics in an ecological context: life in the extreme environment of wave-swept shores

**Goals:** Comparative Biomechanics has long maintained an active, if somewhat ill-defined, presence within SICB. For many years, its contributions were scattered among sessions on invertebrate zoology, ecology & evolution, developmental biology, and comparative physiology. With its incorporation as a division in 2008, the



field gained an established niche within the Society, but this designation is not without its risks. We need to be careful that we remain both comparative and integrative. Within the division, this means that we need to ensure that, in addition to our traditional strengths in areas such as vertebrate locomotion and insect flight, we foster under-represented areas of research such as plant biomechanics and materials science. Beyond the division, we need to emphasize the potential of biomechanics to interact constructively with the full spectrum of biological research. In the past, when biomechanics talks were slotted here and there throughout the program at annual meetings, we were forced by the diversity of our audiences to actively define the connections between biomechanics and (for instance) ecology, evolution, and developmental biology. Now that we are our own division, we need to maintain that tradition by hosting sessions that highlight the integrative nature of biomechanics. On a still larger scale, in these times of rapid global change, SICB as a whole has a responsibility to provide human society with the best science possible. We should explore areas such as ecological mechanics, biomimetics, and biologically inspired design in which biomechanics can contribute practical solutions to pressing societal problems.

## Emily Carrington

**Current Position:** Associate Professor of Biology, University of Washington, Department of Biology and Friday Harbor Laboratories

**Education:** B.A. Biological Sciences, Cornell Univ., 1985; Ph.D., Biological Sciences, Stanford Univ., 1992

**Professional Experience:** Associate Professor of Biology, University of Washington, 2005-present; Associate Professor of Biological Sciences, University of Rhode Island, 2003-2005; Assistant Professor of Biological Sciences, University of Rhode Island, 1996-2003; Killam Postdoctoral Fellow, Dept. of Zoology, Univ. of British Columbia, 1992-1995.



**SICB Activities:** Chair, Dorothy Skinner Award Selection Committee, 2009; Program Officer, Division of Ecology & Evolution, 2002-2005; Symposium Speaker: 2008 (Going with the Flow), 2007 (Honoring Dr. Steven Vogel), 2002 (Physiological Ecology of the Rocky Intertidal Zone); Member since 1988

**Other Memberships:** Sigma Xi, American Society of Limnology & Oceanography, Western Society of Naturalists

**Research Interests:** I am fascinated by the form and function of organisms inhabiting physically demanding environments, where thermal, osmotic, and hydrodynamic conditions can be extreme. I generally focus on organisms common to wave-swept rocky shores, where they are alternately exposed to marine and terrestrial conditions with the rise and fall of the tides. How do extreme environmental fluctuations affect the growth, reproduction, and survival of organisms with such different body plans? My research involves both plants and animals and spans many levels of biological organization, from the mechanics of biological materials, to the persistence of populations, to the characterization of the



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physical environment and how it influences biological processes. Research in my laboratory has developed in four general areas: 1) ecomechanics of wave-swept mussels, 2) mechanical design of mussel byssus, 3) biophysical ecology of intertidal snails and their barnacle prey, and 4) functional morphology of seaweeds.

**Goals:** I first joined SICB (then ASZ) as a student in 1988 and have been a regular attendee of the annual meetings since 2002. It was during my service as a divisional program officer 2002-2005 that I came to appreciate the incredible diversity of biomechanics research presented at our annual meetings. The strength of the new DCB unquestionably lies in vertebrate and invertebrate functional morphology: swimming, flying, running, feeding. I would like to maintain this core, while broadening participation in other biological disciplines such as ecology, biomaterials and plant biology. I would continue Bob Full's work aimed at increasing the participation of underrepresented minorities and advocate actively for consistent representation of women in all aspects of SICB, from symposium speakers to divisional and society-wide officers.