



Division of Comparative Biomechanics (DCB): 2007 Spring Newsletter

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Message from the Interim Secretary

Miriam Ashley-Ross

Minutes of the 2007 Business Meeting in Phoenix

DCB held its first Business Meeting on January 4, 2007, at the SICB Annual Meeting in Phoenix, AZ.

Bob Full, the interim Chair, called the meeting to order. The first order of business was the Introduction of the interim officers: Bob Full, Chair; Frank Fish, Program Officer; Miriam Ashley-Ross, Secretary; Monica Daley, Student representative. Bob briefly discussed the rationale for creating the Division of Comparative Biomechanics: it should cut across disciplines and taxa of study, thereby integrating the strengths of the other divisions. He highlighted Mimi Koehl's plenary lecture and the Not-So-Mini Symposium honoring Steve Vogel as examples of the appeal of comparative biomechanics.

Adopting the Bylaws for the division was the first official item on the Agenda. Proposed bylaws were passed out for examination by the attendees. A vote was taken, and the Bylaws were adopted unanimously. The DCB would like to create a worldwide list of folks interested in biomechanics. If you know of anyone, particularly foreign biomechanists who would be interested in the DCB, please send names of people who should be on the list to Bob Full. The goal of this effort is to increase membership of DCB, and also to have a list of potential speakers who could be invited to participate in symposia. The next topic of discussion was awards (student papers, etc) - currently DCB doesn't have any on the books. We need to establish criteria for student paper/poster awards. Also, if we are to offer any more substantial awards, we need sponsors, or suggestions of sponsors.

Frank Fish discussed symposia for upcoming meetings. We need symposia for the Boston meeting (the 2009 Annual Meeting) - think especially about local people. Frank made several suggestions for subjects of symposia in the Fall Newsletter. Funding, or attempts to procure it, is necessary to get a symposium approved. The funding can come from a Division within SICB, NSF, a book publisher, etc. If you are considering organizing a symposium, please consult with Frank regarding ideas. There are also two other ways to have symposia:

- (1) Mini-symposium - contributed papers that are designated as their own mini-symposium, with their own keyword. This has the advantage that it doesn't cost much, and doesn't require outside funding. Papers from mini-symposia may be published in the ICB journal. The only downside to a mini-symposium is that speakers wouldn't get registration fees waived.
- (2) "Flash" symposium - half day event, could be proposed after deadline date. As with a mini-symposium, this option wouldn't require outside funding. Papers could be published in ICB. For any type of symposium that is being proposed, Frank emphasized that it is important to reach out to speakers who don't normally attend. The diversity of symposium contributors is important, especially for NSF. Diversity also includes the professional/career level of contributors - having graduate students and post-docs as well as established professors is a plus. SICB President Woodin announced that there is now a new fund to support symposia - SICB has seeded it with \$100K, more contributions are requested.

Dianna Padilla talked about NSF reorganization - Integrative Organismal Biology is now going to be Integrative Organismal Systems. Information on the new structure should be up on the NSF website by now. Dianna opined that Comparative Biomechanics will fit well within the new NSF organizational structure.

Miriam Ashley-Ross discussed the upcoming elections for DCB officers (biographical information on the candidates should be up by the time you read this), and listed upcoming meetings of interest to biomechanists:

- (1) American Society of Biomechanics Annual Meeting. The 2007 ASB Meeting will be held on the campus of the Leland Stanford Junior University on August 23-25, 2007.
- (2) International Society of Biomechanics. The next biennial ISB Congress, the 21st, will be held in Taipei Taiwan from July 1 to 5, 2007. Visit the www.isb2007.org for more info. Deadline for Abstract Submission: January 15, 2007
- (3) Annual Scientific Meeting - SEBatGlasgow2007. 31st March - 4th April 2007. Scottish Exhibition and Conference Centre
Abstract Submission Deadline: 12th January 2007

Malcolm Gordon announced next meeting of IUPS in Kyoto, Japan, August, 2009, and challenged the DCB to come up with a satellite symposium to coincide with the meeting.

Rachel Merz talked about the SICB digital library. The rationale behind having it focus on Biomechanics initially is because biomechanics isn't well integrated into many curricula. The digital library is intended to be a useful resource for teaching. Submissions are peer-reviewed - can be teaching methods, lab exercises, snippets on fascinating animals. To view the material, go to the SICB homepage, click on the link there. Submissions are handled through the website; text documents should be in RTF format. Copyright protection is the author's responsibility.

New Business:

- (1) Journals - should DCB sponsor a journal? If so, which one? Where will the funds to do so come from? This issue was raised, without resolution.
- (2) Society budget - meetings have run at a slight deficit. Bob Full asked for suggestions about what might be given up, or how to solve this problem. Andy Biewener suggested that we might raise the meeting registration fees (for regular members, not students) to solve the budget shortfall. John Bertram suggested that he'd be willing to pay more for registration if we had a wireless access point. Margaret Rubega suggested regular members could give up their free drink tickets.

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The meeting was adjourned with the directive to attendees to spread the word of the DCB! Consider organizing symposia! Any other suggestions should be directed to the interim Chair.

Candidates for Elections

Canidates for Chair



John E.A. Bertram

Current position: Associate Professor, Dept. of Cell Biology and Anatomy, Faculty of Medicine, University of Calgary

Education: Ph.D. 1988 (Anatomy/biomechanics) University of Chicago, M.Sc. 1984 (Zoology/biomechanics) University of British Columbia, B.Sc. 1981 (Zoology) University of British Columbia

Professional experience: Medical Research Council of Canada Post-doctoral Fellow, Dalhousie University (1988-90), Bullard Research Fellow, Harvard Forest, Harvard University (1990-91), Research Associate, Concord Field Station, Harvard University (1991-92), Assistant Professor, Dept. of Anatomy, College of Veterinary Medicine, Cornell University (1992-98), Assistant Professor, Dept. of Sport and Exercise Sciences, Ithaca College (1998-99), Associate Professor, Dept. of Food, Nutrition and Exercise Sciences, College of Human Sciences, Florida State University (1999-2004)

Other professional activities: Guest faculty, Organization for Tropical Studies, Costa Rica; NIH Minority Student Summer Program mentor

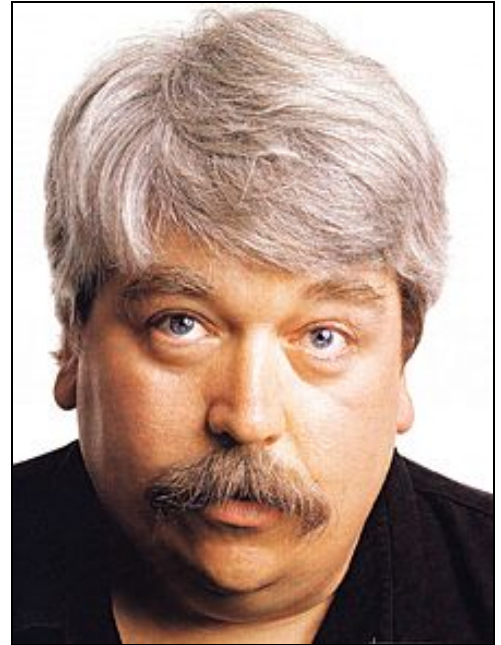
SICB activities: Member ASZ/SICB since 1985, Organizer, Northeast Regional Meeting of DVM, Ithaca, NY 1995, Div. of Vertebrate Morphology Nominations Committee Chair 1997, Symposium co-organizer (with R. Marsh), "Muscle properties and organismal function: shifting paradigms". Albuquerque, NM. 1996, Division of Vertebrate Morphology Program Officer, 2004-2005

Other memberships: At various times; ASB, ISB, SEB

Research interests: 1. Comparative biomechanics of trees, fish, reptiles, birds and mammals. 2. Dynamic properties of cartilage. 3. Evolutionary adaptations of equids. 4. Biomechanics of human locomotion, 5. Teaching strategies to introduce students to biomechanics

Goals statement: DCB was formulated to serve as an identifiable home for rigorous biological biomechanics research and to promote the insight available from applying this discipline to questions in the biological world. The objective at this time is to firmly establish the Division in a manner that will allow it to flourish and fulfill this purpose. The development of meaningful symposia that demonstrate the impact that our field can have will be instrumental in establishing the value of DCB. We will be better served by fewer but influential symposia than by simply producing a large number with our name associated. Several areas are currently undergoing important shifts in perspective fueled by work from our membership. I suggest we focus our institutional resources (particularly intellectual) on promoting one of these areas over each of the next few years - this will help define the role of the Division while complimenting the work of our members. I would propose an official committee be formed to organize and coordinate this as a strategic initiative. Communication is also of key importance. The electronic age allows us to involve our members directly in the discussion/decision process and gives us the opportunity to make DCB initiatives known to other related groups worldwide. Organized properly, the DCB has the potential to provide a conduit between our desktops and the worldwide biomechanics community. I have served as an *ad hoc* liaison with SEB, another group where comparative biomechanics is well represented, and would continue to foster a positive association with that group. Many of us had the pleasure of attending the International Congress of Biomechanics in Munich last year. Through the initiative of some individuals (all members of our new Division) comparative biomechanics was represented at that venue, though not as strongly as it deserves. Our new Division is situated to have a substantial impact on the organization of other such high profile meetings. By promoting our field within our own Society meeting and at others worldwide we will help to secure Comparative Biomechanics as an endeavor to be supported and encouraged. The chair of our new Division will have to manage its development while being sensitive to other Divisions within the Society (DCPB, DIZ, DVM). These Divisions have served as a fertile ground for the development of comparative biomechanics and in our best interest to keep the well-being of the Society in mind as our Division develops.

Robert Joseph Full



Current position: Professor of Integrative Biology, University of California, Berkeley 1995 - present

Education: Ph.D., State University of New York at Buffalo 1984; M.A., State University of New York at Buffalo 1982, B.A., State University of New York at Buffalo 1979

Professional experience: National Academy of Sciences Mentor in the Life Sciences 2006; External Member of Development Team for the Production of a Capabilities Roadmap to 2030, NASA 2004-05; External Member for Review of the MTP Regional Mobility Program, NASA 2005; National Youth Leadership Foundation Board Member 2004-06; Science Advisory Board, Samsung 2004 - 06; National Academy of Sciences Summer Institute for Undergraduate Education in Biology 2003, 2005; Goldman Professor University of California, Berkeley 1999 - 2001; Chancellor's Professor, University of California, Berkeley 1996 - 1999 Professor, University of California, Berkeley 1995 - present; Associate Professor, University of California, Berkeley 1991 - 1995; Assistant Professor, University of California, Berkeley 1986 - 1991; Post doctoral Lectureship, The University of Chicago, 1984 - 1986

SICB activities: Participant in the last 27 National Meetings; Founder and Interim Division Chair of Comparative Biomechanics Division 2006-present; Executive Committee, Member at Large 2003-05; Society Science Task Force Chair 1999; Nominating Committee for Society-wide Offices 1998; Society Program Planning Committee 1995 -1998; Society Electronic Communications Committee, Chair, 1994-1999; Society Membership Committee 1991-2, Chair, 1993

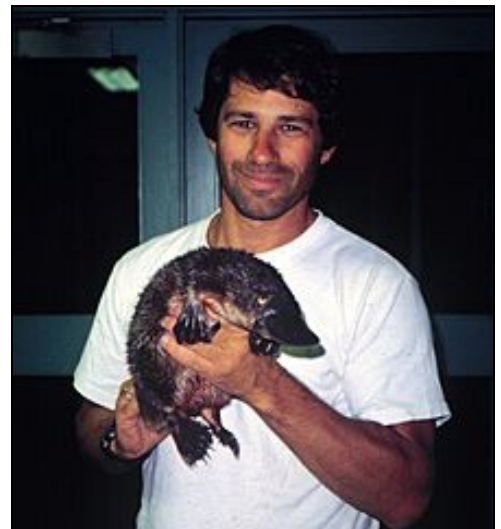
Other memberships: American Society of Biomechanics; American Physiological Society; European Society of Comparative Physiology and Biochemistry; Society of Experimental Biology; *Sigma Xi*

Research interests: (1) Comparative biomechanics of terrestrial locomotion; (2) Neuromechanical systems biology; (3) Comparative physiology of muscle function; (3) Mechanisms of adhesion

Goal statement: I proposed the creation of a new division because comparative biomechanics needed a home where colleagues from all fields, interested students, granting agencies and corporations could turn to find the latest cutting-edge research, the investigators conducting the studies and the events that disseminate the discoveries. No other society in the world is better positioned to highlight the contributions of comparative biomechanics. The strength of the symposium and contributed paper and poster sessions at the SICB annual meetings are unmatched. Comparative biomechanics complements strong divisions that focus on physiology, ecology, behavior, vertebrate morphology and invertebrate zoology. This cross-fertilization has become more obvious in recent years as the society has encouraged themed sessions. Sessions on hydrodynamics, aerodynamics, terrestrial locomotion, feeding, biomaterials, and muscle function represent a core of the meeting and consistently showcase research that sets the pace for the field of comparative biomechanics. My goal is establish the division and then let the next generation lead it.

Candidates for Program Officer

Frank Fish



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Current Position: Professor of Biology, West Chester University

Education: B.A., Biology, Cum Laude, State University College at Oswego, New York, June, 1975; M.S., Zoology, Michigan State University, December, 1977; Ph.D., Zoology, Michigan State University, August, 1980

Professional Experience: Assistant Professor, West Chester University (1980-1986); Assistant Professor, Wallops Island Marine Science Center (Summer 1982); Anatomy of Marine Chordates; Associate Professor, West Chester University (1986-1989); Professor, West Chester University (1989-Present); Research Assistant, Sea Grant Foundation of New York (January 1974 - November, 1974; May, 1975 - September, 1975); Consultant, Dames and Moore Environmental Consulting Co. (June, 1975 - July, 1975); Consultant, Applied Optical Media Corporation (1992); Consultant, Port of Nagoya Aquarium and Mannetron (1999-2001); Consultant, Barnsbury Books, London, UK; Consultant, ZeroGravity; Cartoonist for the Journal of Experimental Biology

SICB Activities: Local Committee for annual meeting in Philadelphia, PA (1983); Nominating Committee for the Chair-Elect of the Division of Vertebrate Morphology (1984, 1988, 1992); Secretary of the Division of Vertebrate Morphology (1991-1992, 1993-1994, 1994-1995); Meeting Session Chair (1983, 1985, 1987-1989, 1996-1999); Editorial Board for the American Zoologist (1992-1997); D. Dwight Davis Student Award Committee (1996, 1999); Co-organizer of symposium, Stability and Maneuverability, Chicago (2001); Chair-elect of the Division of Vertebrate Morphology (2002); Chair of the Division of Vertebrate Morphology (2003-2004); SICB Digital Library Advisory Board (2004-2006); Interim Program Officer of the Division of Comparative Biomechanics (2006-2007); Chair of the Nominating Committee for the Chair-Elect of the Division of Comparative Biomechanics (2006)

Other Memberships: American Society of Mammalogists; Commonwealth of Pennsylvania University Biologists; International Congress of Vertebrate Morphology; Pennsylvania Academy of Science; Sigma Xi; The Society for Marine Mammalogy

Research Interests: (1) Energetics and hydrodynamics of aquatic locomotion by vertebrates with special emphasis on the evolution of swimming modes and morphologies in mammals; (2) Biomechanics and functional morphology of locomotion in vertebrates; (3) Thermoregulation of mammals, birds, and reptiles in respond to an aquatic environment; (4) Hydrodynamics of biological control surfaces and propulsors for biomimetic application. **Goals Statement:** Having now survived the "trial by fire" of organizing the two and a half day symposium to honor Steve Vogel, I now feel capable of dealing with the rigors of organizing symposia and contributed paper sessions for the Division of Comparative Biomechanics. As division Program Officer, it is my responsibility to aid division members in organizing symposia of interest to the membership and the entire SICB. I can also advise on funding opportunities. I have suggested potential symposium topics to get things going with the new division, including the Evolution of Flight; Biomimetics: Fusion of Organism and Machine; Transition from Sea to Land: The Evolution of Terrestrial Locomotion in Vertebrates; and Shells, Scales and Cuticles: Structural Mechanics of Exoskeletons. An important aspect of the Program Officer's duties is to organize the contributed papers and posters. In this regard, it is important to work constructively with the other divisions to appropriately schedule these contributions. I look forward to the opportunity to serve the Division of Comparative Biomechanics.

Adam P. Summers



Current Position: Assistant Professor, UC Irvine

Professional Experience: Swarthmore College 1986 - BA Math, BS Engineering; New York University 1991 - MS Biology; University of Massachusetts, Amherst 1999 - PhD Organismic and Evolutionary Biology; Miller Fellow UC Berkeley 1999-2001; Asst. Prof. UC Irvine 2001-present

SICB Activities: Membership Committee (2004-2007); Grants committee (2004-2005), Chair (2006-2007); D. Dwight Davis best student paper judge DVM (2001, 2005, 2006); Chair of the best poster prize naming committee (2000); Post-doctoral representative for the Division of Vertebrate Morphology (2000-01); Graduate student representative for the Division of Vertebrate Morphology (1995-98)

Other Memberships: American Society of Ichthyologists and Herpetologists; Society for the Study of Amphibians and Reptiles; American Physiological Society; Society of Experimental Biology; American Elasmobranch Society; Society of Vertebrate Paleontology

Research Interests: Form, function and comparative biomechanics of skeletal biomaterials.

Statement of Goals: As the DCB program officer I will endeavor to continue the current scheme of theme based sessions that span several divisions. I will also actively solicit collaborative symposia with divisions closely allied with ours, such as DVM and DIZ. There will be a large influx of presentations to the new division, some that would have been presented in other divisions and some that are entirely new to SICB. Arranging the sessions for maximal thematic content and minimal overlap should be an interesting challenge. I am an advocate of the current poster session format, where they are unopposed by any talks.

Candidates for Secretary

Miriam A. Ashley-Ross



Current Position: Associate Professor of Biology

Education: Ph. D., University of California, Irvine, 1994; B.S., Northern Arizona University, 1988

Professional Experience: Associate Professor, Dept. of Biology, Wake Forest University, 2004-current; Panelist: Plant and Animals Sciences section, National Science Foundation Graduate Research Fellowship Program, 2006; Panelist: Animal Sensation and Movement Panel, National Science Foundation, 2004-2005; Panelist: Physiology, Microbiology and Neuroscience section, National Science Foundation Graduate Research Fellowship Program, 2003-2005; Assistant Professor, Dept. of Biology, Wake Forest University, 1997-2004; Postdoctoral Researcher, University of Pennsylvania, 1996-1997; Postdoctoral Researcher, University of California, Irvine, 1995-1996; Grass Fellow in Neurophysiology, Marine Biological Laboratory, Woods Hole, MA, 1995, summer; Instructor, California State University, Long Beach, 1994-1995

SICB Activities: Participant (oral and poster presentations) in annual meetings since 1990; Secretary of the Division of Comparative Biomechanics, 2006-current; Chair of the Public Affairs Committee, 2000-current; Co-organizer of "Molecules, Muscles and Macroevolution: Integrative Functional Morphology," held at the 2001 Annual Meeting; Co-chair of the Public Affairs Committee, 1999-2000; Representative from the Division of Vertebrate Morphology to the Public Affairs Committee, 1998-current; Representative from the Division of Vertebrate Morphology to the Electronic Communications Committee, 1997-2004; Representative from the Division of Neurobiology to the Graduate Student and Postdoctoral Affairs Committee, 1996-1997; Representative from the Division of Vertebrate Morphology to the Graduate Student and Postdoctoral Affairs Committee, 1994

Other Memberships: International Society of Vertebrate Morphologists; Society for Neuroscience; American Arachnological Society

Research Interests: Functional morphology of locomotion in vertebrates; Biomechanics of support, locomotion and prey capture in spiders; Muscle performance and evolution

Goals Statement: DCB was organized to provide a formal association between scientists working on diverse taxa, but having a common interest in the mechanical basis of function. Thematic sessions based around biomechanics have been some of the most packed for years at SICB meetings. Now that we have a formal home, we are in a position to do more. As your interim secretary, I've been responsible for such pedestrian but necessary tasks as putting together the Newsletter offerings, recording the minutes from the business meeting (which you'll read in the Spring Newsletter), and riding herd on communications between DCB and the Society officers. I expect that, if elected, I'll be doing more of the same, but I also hope to make our Division a very visible presence in the Society by assisting with the creation and organization of a best student paper award. As a graduate student, I was greatly influenced and inspired by the high quality of presentations, and interactions with leading researchers, at the annual meetings. I would like to ensure that DCB graduate students have the same enriching experience.

Stephen Roberts



Current Position: Associate Professor, School of Life Sciences, University of Nevada Las Vegas

Education: Illinois State University (B.S., M.S.); Arizona State University (Ph.D.); University of Chicago (postdoc)

Professional Experience: Section Leader, UNLV School of Life Sciences Integrative Physiology Section; Reviewer: *Proceedings of the National Academy of Science*, *Journal of Experimental Biology*, *Genetica*, *Genome*, *Journal of Insect Physiology*, *Physiological and Biochemical Zoology*, *Comparative Biochemistry and Physiology*, *Integrative and Comparative Biology*, *Physiological Entomology*, *Behavioral Ecology and Sociobiology*, *Ecological Monographs*, *Functional Ecology*, *BMC Ecology*, *Environmental Entomology*, *Annals of the Entomological Society of America*, *Journal of Insect Behavior*, *Entomologia Experimentalis et Applicata*, *Zoology-Analysis of Complex Systems*, *Naturwissenschaften*; National Science Foundation (Ecological and Evolutionary Physiology *ad hoc* and panel, Doctoral Dissertation Improvement Grant panel); National Institutes of Health Minority Biomedical Research Support Program (*ad hoc*); Earthwatch Institute (*ad hoc*); National Geographic Society (*ad hoc*)

SICB Activities: Numerous contributed talks and posters; Session Chair (Behavioral Mechanisms) Society for Integrative and Comparative Biology Annual Meeting, San Diego, CA; Co-organizer, Society for Integrative and Comparative Biology Symposium, "Ontogeny of physiological regulatory mechanisms: Fitting into the environment" New Orleans, LA; Judge, Best Student Talk Competition, Society for Integrative and Comparative Biology Annual Meeting, Anaheim, CA

Other Memberships: American Physiological Society; Entomological Society of America

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Research Interests: Energetics and aerodynamics mechanisms of insect flight

Goals Statement: I am a faculty member in the School of Life Sciences at The University of Nevada Las Vegas and a lifetime member of SICB. I have enjoyed the benefits of participating in SICB since my graduate student training in the mid 1990's and still consider it the best venue for PIs and trainees of all levels in the field of biomechanics (and comparative biology in general) to share their research and develop collaborations. My work in the area of biomechanics focuses on the mechanisms and limits of energetic and aerodynamic performance in flying insects, particularly bees and flies. My approach to these issues relies on the fact that biomechanical traits are wonderfully suited, arguably above all others biological traits, to the core SICB approach of experimentally (1) identifying the underlying genetic, biochemical and physiological basis of variation in these traits, (2) determining how such variation affects organismal-level performance consequential to fitness, and (3) elucidating the ecological and evolutionary influences that maintain this variation. Moreover, as Steven Vogel notes in his popular writings, biomechanical traits serve as ideal models to teach new learners in biology the fundamental process and strength of the scientific method. Bob Full and the other founding executive officers of the Division of Comparative Biomechanics have performed superbly in their justification, organization and establishment of the DCB and, as shown during the first DCB business meeting in Phoenix, have amply delivered regarding the critical triad of division success: membership, symposia offerings and plans for graduate student support/awards. It is up to the future officers and far more so the general membership of the DCB to ensure this inertia carries forward. I am delighted at the opportunity to serve in a professional society that has given me so much and help the DCB further enhance the visibility, importance and capacity of research in comparative biomechanics.