

Division of Comparative Physiology & Biochemistry (DCPB): 2003 Spring Newsletter

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Message from the Chair

Nora B. Terwilliger

What a feast or perhaps more of a progressive dinner the past six months have been. Our appetites for comparative physiology and biochemistry were whetted in San Diego in August 2002 at the APS Joint Comparative Meeting, we dined on feasts of fact and fancy at the SICB meeting in Toronto in January 2003, and for dessert, the International Congress of Comparative Physiology and Biochemistry (ICCPB) in Australia at Mt. Buller in February 2003. Members of DCPB have been represented well at all three venues. Several highlights of our SICB Toronto meeting included Martin Feder's stimulating Past Presidential Address, Adam Summers' Bartholomew Award Lecture (see below for more details) and our DCPB sponsored symposia. At the ICCPB meeting, George Somero, who gave the introductory Knut Schmidt-Nielsen Lecture, and plenary lecturers Barbara Block and Lynn Riddiford, are members of DCPB, and at least six of the symposia were organized by DCPB members.

And the winners are...

I am delighted to announce the results of the DCPB Best Student Presentations at the SICB Toronto 2003 meeting:

Best Student Talk

- ◆ The winner: Scott Kirkton, Arizona State University (Kirkton, S.D. and Harrison, J.F., "Developmental and interspecific body size effects on grasshopper jumping performance").
- ◆ Second place: Oliver Love, McGill University (Love, O.P., Bird, D. M. and Shutt, L., "Plasma corticosterone in captive sibling American kestrels: effects of age, hatching order and hatching asynchrony").
- ◆ Third place: Jonathan Cohen, Duke University Marine Laboratory (Cohen, J.H. and Forward, R.B. "Photoresponses of the copepod *Calanopia americana* involved in diel vertical migration").

Best Student Poster

- ◆ The winner: Mark Haussman, Iowa State University (Haussmann, M.F., Winkler, D.W., O'Reilly, K.M., Huntington, C. E. and Vleck, C. M. , "Telemere shortening in

birds varies with life span").

◆ Runners up:

- ◇ Michelle Monette, University of Massachusetts, Amherst (Monette, M.Y. and McCormick, S.D., "Effects of short-term, sub-lethal acid/aluminum exposure on seawater tolerance and endocrinology of Atlantic salmon smolts").
- ◇ Steve Dinkelacker, Miami University (Dinkelacker, S.A., Costanzo, J.P. and Lee, R. E., "Cold hardiness and desiccation resistance in hatchling *Emydoidea blandingii*").

The first place winners, Kirkton and Haussman, will each receive a check for \$100 from DCPB. Congratulations to all of you for a fine job. We thank the chair of the Student Presentation Competition, Kevin Krajniak, for his excellent work in organizing the judging of the contest. Helping him were judges George Bourne, Marty Kapper, David Taply, and Donna Wolcott on posters, and judges Mary Chamberlin, Ed Dzialowski and Rich Londraville on talks. Thanks for your enthusiastic participation and critical evaluations. Welcome to Donna Wolcott, our new DCPB Chair-Elect (she'll be assuming office after the SICB New Orleans 2004 meeting), and Michael Dickinson, our new DCPB Program Officer. Sincere thanks to Jon Harrison, our outgoing (in all respects) Program Officer for such a good job over the past two years. A significant new opportunity for linking the sometimes disparate fields of comparative and medical physiology is available now as we plan symposia and special topics for the IUPS 2005 Congress to be held in San Diego. Be sure and read the message from Lou Burnett, the DCPB representative to IUPS, about the strong planning underway by DCPB/SICB and APS Comparative Section for this upcoming international congress. It is especially important during these turbulent political times for academic scientists to reach out and interact on a global basis with our colleagues.

Message from the Program Officer

Michael Dickinson

Farewell and Thanks! The first item this spring is to thank my predecessor, Jon Harrison, for the exceptional job he has done over the past several years as program officer for DCPB. Jon has helped orchestrate a diverse and stimulating array of symposia, and will continue to provide leadership for both the Division and SICB as a whole.

Toronto: By all accounts the Toronto meeting was a great success. Special Congratulations to Adam Summers, who received this year's Bartholomew Award. Many thanks to Hubert Vaudry, who traveled from France to give the Howard Bern Lecture. We are privileged to be able to honor Bart and Howard each year.

New Orleans: We have a great assortment of symposia to match this great city. DCPB will offer:

- Ontogeny of physiological regulatory mechanisms: Fitting into the environment (Carl Reiber).
- Selection Experiments as a Tool in Evolutionary and Comparative Physiology: Insights into Complex Traits (John G. Swallow and Theodore Garland, Jr).

All three society-wide symposia are of special interest to the Division:

- Integrative Biology: A Symposium Honoring George A. Bartholomew (Ray Huey)
- The Integration of Comparative Genomics and Ecological/ Evolutionary Studies (Scott Winters)
- In Vino Veritas: The Comparative Biology of Ethanol Consumption (Robert Dudley). This last symposium was delayed for a year on the assumption that New Orleans might be a better venue for this topic. Missing, alas, is a symposium on the dietary impact of crayfish muscle.

Thanks to all the organizers, as well as Jon, for putting together such a great program. On a culinary note – I highly recommend the muffuletta sandwiches at the Napoleon House, 500 Chartres St. Take a table in the outdoor atrium.

San Diego: The time has arrived to start planning symposia for the 2005 meeting. Symposia may run either within DCPB or across divisional boundaries and represent one of the best ways for us to live up to our integrative philosophy. Interest in organismal approaches is growing in many disciplines within Biology, including those outside the traditional realm of SICB. The symposia are an excellent opportunities for us to recruit scientists from these fields, and I encourage you to organize events that help to cross-fertilize our discipline. Please email me (flyman@caltech.edu) to discuss your ideas. Official Applications are due August 15, and general instructions are provided on the Society webpage (<http://www.sicb.org/meetings/2005/index.php3>). Other Meetings: SICB is helping to organize 35th Congress of the International Union of Physiological Sciences in San Diego, March 31–April 5, 2005. Details regarding this meeting can be found in the *Message from the DCPB Representative to IUPS* below.

Message from the Secretary

Mary E. Chamberlin

SICB DCPB BUSINESS MEETING MINUTES, January 5, 2003.

The minutes of the last business meeting were approved and the new officers, Donna Wolcott (chair–elect) and Michael Dickinson (program officer), were introduced and welcomed and thanks were extended to all the candidates that ran.

Jon Harrison announced the symposia that would be of interest to DCPB members at the next SICB meeting (New Orleans). The deadline for symposia for the 2005 SICB meeting (San Diego) is late summer. Please see details about the New Orleans and San Diego meetings in the *Message from the Program Officer*. The next IUPS meeting will be in San Diego in 2005. Please see details regarding this meeting in the *Message from the DCPB Representative to IUPS* below. Finally, Jon asked for feedback for the organization of the Toronto SICB meeting. There was some discussion that the having the posters at noon was fine but there was a concern that the duration of the sessions was too short. The noon time was chosen because there were suppose to be no other events happening at that time, but time conflicts with several meetings did arise.

Bill Zamer from the National Science Foundation announced that NSF is looking for a divisional director for Integrative Biology and Neurosciences (IBN). He asked the group to think of people who would have the following qualifications: 1) significant administrative experience (e.g. Dean's level), 2) be a good spokesperson for integrative biology, especially organismal biology, and 3) have the breadth and training to appreciate the variety of subdisciplines represented in IBN. NSF is also looking for IBN rotating program officers for Plant Biology and Ecological and Evolutionary Physiology. Please contact Bill Zamer (wzamer@nsf.gov) if you have suggestions regarding the divisional director or program officer positions. Bill

was asked if there are new directions for the NSF programs. The Biological Sciences and Geological Sciences Directorates will be increasing support Frontiers in Integrated Biological Research (FIBR), which invites studies dealing with different levels of organization and are often cross-directorate research programs.

Marvalee Wake asked for volunteers for SICB officers. She was asked about the scheduling of the 2005 SICB meeting in San Diego when the IUPS will be held in San Diego in the spring of 2005. She stated that this concern had been considered when the 2005 SICB meeting was organized. It was decided that it was in the best interests of the entire SICB to stay with the San Diego site.

Pat Walsh and Tom Mommsen, co-editors-in-chief of the journal, *Comparative Biochemistry and Physiology*, gave a report about the journal. Pat indicated that there are two associate editors from DCPB, Don Jackson and Mark Sheridan. The journal does produce symposium issues (refereed articles) and every two years these are made available to the public on CD's. Good review articles are being sought and the idea of a Reviews Editor or an Associate Editor-in Chief is under consideration. If you have anyone you would like to suggest please contact Pat (pwalsh@rsmas.miami.edu) or Tom (tpmom@uvic.ca). Tom Mommsen gave an overview of journal's activities in the last year:

- 904 submissions
- As of July, the rejection rate was ~40%
- From July 2001–July 2002 over 1500 reviewers were involved in assessing manuscripts.
- The journal is switching over to a new computer-based tracking system in which a potential reviewer can read a manuscript's abstract and then download the full article (pdf file) if he/she agrees to review the paper.

Al Bennett gave a presentation for the editor of *Physiological and Biochemical Zoology*, Jim Hicks, who could not be at the meeting. In Jan. 2002 the journal moved to U.C. Irvine and changes have been made to the journal:

- a new cover reflecting an ecological and evolutionary emphasis
- a double-blind review system
- submissions are now made over the internet and decision letters are sent out by e-mail

Submissions have increased (the number of 2002 submissions is 45% higher than in 2001) so the number of papers in each issue has been increased from 10 to 15. 58% of the submissions are from non-U.S. countries. The rejection rate is 49% and the 1999–2000 impact factor was 2.54 (for comparison, *Am.J.Physiol. Regulatory Biology* = 2.77). The time from submission to initial decision takes on average 82 days. The average time to a final decision is 111 days. Several factors can slow the turn around time:

- Not electronically submitting the article
- Submitting the article electronically, but submitting the figures by post
- 35% of the reviewers are late in submitting the reviews (mean late period is 2 weeks). The journal has addressed this problem by contacting potential reviewers via e-mail and asking reviewers to return their reviews in 3 weeks. If the reviewer is 72 hours late, they are e-mailed a reminder.

Martin Feder, editor of the comparative physiology section of the *Annual Review of Physiology*, asked that if anyone is interested in submitting reviews, please contact him (m-feder@uchicago.edu).

Nora Terwilliger commented on the problems with students registering for the best student presentation awards for the Toronto meeting. Ideas for changing the procedure will be sent out to the members of DCPB in the future. Nora reported on the Chair's luncheon at which there was a discussion regarding recruiting new

members to SICB and the idea of creating a "functional genomics" division. A member of the DCPB group commented there is already functional genomics in DCPB. Finally, Nora has asked SICB for funds for supporting symposia at the next IUBS and IUPS meetings.

ELECTION OF OFFICERS

We are holding elections for DCPB Secretary. The electronic ballots will be distributed during the summer. Please be sure to vote when your ballot arrives!

Secretary Candidates

E. Eugene Williams

Current Position:

Assistant Professor of Biological Sciences, Salisbury University, Salisbury, Maryland.

Education: B.S., Marine Biology, 1984, University of North Carolina at Wilmington; M.S., Marine Biology, 1987, University of North Carolina at Wilmington; Ph.D., Zoology, 1992, Arizona State University.

Professional Experience: 1999–present, Assistant Professor, Department of Biological Sciences, Salisbury University. 1995–1999, Postdoctoral Research Associate, Department of Biology, Indiana University Purdue University at Indianapolis. 1993–1995, Postdoctoral Research Associate, Department of Zoology, Oregon State University.

SICB Activities: Member for 14 years. Presented eight posters or talks at our annual meetings, both as a student and as an Associate Professor with students. Symposium speaker for the SICB symposium, "The Biology of Lipids: Integration of Structure and Function" in Albuquerque (1996).

Other Memberships: International Society for the Study of Fatty Acids and Lipids (charter member); Biophysical Society; American Association for the Advancement of Science; Sigma Xi, the Scientific Research Society; The Honor Society of Phi Kappa Phi.

Research Interests: My research centers on the integrated cell biology, biochemistry, and biophysics of the membranes of animal cells. I am particularly interested in how individual membrane lipids contribute to overall cell and membrane function. My current work focuses on the curious requirement for specific polyunsaturated fatty acids in the membranes of many cold water fish and invertebrate species, and how these same fatty acids are able to dramatically inhibit the proliferation of tumor cells. I am also examining the role of membranes and membrane lipids in the molt cycle of the blue crab. Undergraduate researchers are heavily involved in all these projects. I put a significant amount of effort towards training undergraduates in research techniques so that when they enter graduate or professional school they are able to succeed quickly. Please visit our web site: <http://henson1.salisbury.edu/~biology/faculty/Williams%20lab/web/index.htm>.

Statement of Goals: The Divisional Secretary's job is to keep divisional records and conduct business affairs through discussions with the other division officers. Another very important function is to facilitate communication between the Division and its members. I intend to use the ideals and standards established by our previous Secretaries to continue to provide you excellent service in all these regards. I will make extensive use of the internet and e-mail to accomplish these goals. I have a long-term commitment to this Society and this Division, and I will work hard to serve them well.

Paul H. Yancey

Current Position: Professor and Carl E. Peterson Endowed Chair of Science, Biology Department, Whitman College, WA, <http://people.whitman.edu/~yancey>

Education: B.S., 1973, Biology, California Institute of Technology; Ph.D., 1978, Marine Biology, Scripps Institution of Oceanography–University of California San Diego.

Professional Experience: NATO Postdoctoral Fellow, University of St. Andrews, Scotland, 1978–1980; Visiting Research Scientist, National Institutes of Health, 1987–88; Visiting Fellow, University of Otago, New Zealand, 1994 and 1998; Assistant, Associate, and Full Professor, Whitman College, 1981–present.

SICB Activities: Member since 1982; symposium speaker for SICB symposium on cell volume regulation (Atlanta, 2000); six other presentations, some with undergraduate researchers, at SICB annual meetings since 1996.

Other Memberships: American Physiological Society; AAAS (nomination committee officer, 1992–94); Sigma Xi (vice–president of local chapter, 1999– 2002); Council on Undergraduate Research (local Institutional Liaison, 1995– present).

Research Interests: My work focuses on organic osmolytes in marine animals and mammalian kidney and brain. We seek to understand why osmolyte molecular types differ among species from different taxa and from different habitats. In particular, certain osmolytes may protect proteins from internal and external stresses including urea, salt, temperature, hydrostatic pressure, and sulfide. Currently we are studying osmolytes in animals from the deep sea in general and from hydrothermal vents and cold seeps.

Statement of Goals: Scientific societies have increased efforts to reach out to future scientists, the educators that teach them, and the general public. I believe this trend should be accelerated. For SICB/DCPB, this would include more efforts to foster undergraduate meeting participation, provide more online resources for educators, and provide more job and internship resources for both undergraduate and graduate students.

Message from the Graduate Student/Postdoc Representative

Jennifer Head

Toronto's meeting offered SICB's usual eclectic melange of cutting–edge science from a breadth of fields, but for anyone involved in the DCPB, the highlight was undoubtedly the symposium in memory of Peter Hochachka. As is probably the case for the majority of younger members of DCPB, although I did have the pleasure of meeting Peter, I never had the opportunity to work with him, nor did I know him personally. In spite of this, his work played a monumental role in the route that my interests took as a budding physiologist interested in the genetic and biochemical basis of environmental adaptations, and provided a solid foundation upon which we were all able to build. At the risk of sounding terribly cliché, I truly believe that his impact on

and contribution to the field will persist through research and further characterization of the systems in which he was interested, and that this will largely be accomplished by our generation of physiologists.

Since I still have the platform, I would like to mention that the DCPB holds its business meeting at the annual SICB meetings, and to remind all student members that we are invited and strongly encouraged to attend. We are, after all, a very integral part of the division. In other business, when it comes time to register for the next annual meeting, keep in mind that the student award deadlines are the same as the registration deadline and that if you are interested in competing for an award, be sure to indicate so by checking the box by the abstract.

As usual, feel free to contact me at jhead@oimb.uoregon.edu with any comments and/or questions. Until next time...happy hunting.

Message from the DCPB Representative to IUPS

Lou Burnett

The 35th Congress of the International Union of Physiological Sciences (IUPS; <http://www.iups2005.org/>), "From Genomes to Functions", will meet in San Diego, California from March 31 to April 5, 2005. Throughout the 20th Century, the IUPS Congress has served as an international forum to bring together physiologists from around the world to disseminate new knowledge, renew old relationships, and forge new relationships among physiologists from distant lands. The Congress program will focus on the vibrant new role that physiology is playing in relating the genome to complex functions of many life forms.

Under the auspices of the U.S. National Academy of Sciences IUPS 2005 is being organized by the six member societies of the U.S. National Committee of the IUPS: the American Physiological Society (<http://www.the-aps.org/>), the Society for Neuroscience (<http://web.sfn.org/>), the Microcirculatory Society (<http://microcirc.org/>) the Society of General Physiologists (<http://www.emory.edu/CELLBIO/SGP/sgp.htm>), the Biomedical Engineering Society (<http://www.bmes.org/>), and the Society for Integrative and Comparative Biology (<http://www.sicb.org/>),

SICB is represented on the U.S. National Committee of the IUPS by Lou Burnett. Lou Burnett and Nora Terwilliger are also serving on the National Organizing Committee for the IUPS 2005 meeting. Barbara Block is serving on the International Scientific Programming Committee for this meeting. Malcolm Gordon is chairing the Comparative Physiology Commission. We hope the comparative physiologists will make a strong showing at this meeting. Suggestions for symposia and other program features are being solicited. The deadline is May 15, 2003. Check out the IUPS 2005 web site (<http://www.iups2005.org/announce/programcall.htm>) for details. Contact any of the above-named SICB members for further information or to pass along suggestions (Lou, BurnettL@cofc.edu; Nora, nterwill@oimb.uoregon.edu; Barbara, bblock@leland.stanford.edu; Malcolm, msgordon@ucla.edu).

The George A. Bartholomew Award

Adam Summers graduated from Swarthmore College in 1986 with a BA in Mathematics, a BS in Engineering, and no training in Biology at all. After stints as a SCUBA diving instructor, private investigator and free-lance computer consultant, he took up the study of herpetology with Herndon Dowling at NYU. In 1992 he received a masters degree in Biology and after a brief stint in Phil Motta's lab at the University of South Florida headed to the University of Massachusetts to pursue a Ph. D. with Beth Brainerd. The collegial atmosphere of the lab fostered collaborations with Karel Liem on bony fish functional morphology and with Tom Koob on the biochemical correlates of material properties. After a peripatetic research program Adam settled on the form and function of the cartilaginous skeleton as a fruitful system for asking questions about the evolution of skeletal material properties and receives his degree in 1999.



Adam then abandoned the ice storms and snow of western Massachusetts, heading west to the University of California at Berkeley to take up a Miller Research Fellowship supervised by Marvalee and David Wake. He worked on several projects involving the functional morphology of the enigmatic and endearing caecilians and began an investigation of the effects of genome size on appendicular musculature in plethodontid salamanders. In 2001 he moved to still warmer climes of southern California to take a position as an assistant professor at UC Irvine. In addition to continuing work on the biomechanics and evolution of connective tissues Adam writes a monthly column for Natural History Magazine in which he highlights current biomechanical research.

The 2002 Bartholomew Award recipient, Adam Summers