Make Plans Now to Attend Annual Meeting in Washington, D.C.

The 1995 ASZ Annual Meeting will be held on December 26-30, at the Sheraton Washington Hotel in Washington, D.C.

The meeting will be co-sponsored by the American Microscopical Society and The Crustacean Society.

Symposia have been organized on the following areas: “Avian Biology,” “Amphibian Metamorphosis: An Integrative Approach,” “Aquatic Locomotion,” “Bats, Insects and Ultrasound,” “Behavioral Toxicology: Mechanisms and Outcomes,” “Control of Arterial Blood Gases: Ventilatory and Cardiovascular Perspectives,” “Forces in Developmental Biology Research: Then and Now,” “Molecules to Mudflats,” “New Horizons in Barnacle Evolution” and Phylogenetic Systematics, Biogeography and Marine Biodiversity.”

Contributed papers and poster sessions have been scheduled for the following divisions: Animal Behavior, Comparative Endocrinology, Comparative Physiology and Biochemistry, Developmental and Cell Biology, Ecology, History and Philosophy of Biology, Neurobiology, Vertebrate Morphology and Invertebrate Zoology.

Throughout the meeting there will be a number of special events including, a Welcome to Washington Reception, an AMS Luncheon, an AMS/DIZ Social, and our End of the Meeting Party on Saturday evening, in the National Museum of Natural History. Don’t miss this opportunity to meet and socialize with friends and colleagues in the ASZ.

We’ll see you in Washington, D.C.!

Frank Moore
Program Officer

Kristian Fausch
Local Chair

Diane Lipscomb
Local Chair

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Message From the President

Michael G. Hadfield

All of our news is good as we go into the last quarter of 1995. Let me tell you some of it.

Membership: The ASZ membership.... ASZ membership has remained constant over the last year, meaning that we have now turned the corner on the decline that began with our big financial problems in 1990. Because there is always some loss of membership, the current membership includes a real gain of new members, indicating that we really can do this. I thus renew to all of you my challenge and plea to encourage your colleagues and students to join this exciting and rejuvenated society. If you need reasons to do so, see my message in the Spring 1995 Newsletter. There are plenty!

The American Zoologist: The Executive Committee has approved the appointment of Professor James Hanken of the University of Colorado at Boulder as editor of our journal. Dr. Hanken will succeed Milton Fingerman, who has served the Society so loyally and well in this role for 15 years. Jim Hanken has plans for changes and additions to both the looks and contents of our journal. The Society is extremely fortunate that a person with Jim Hanken’s enormous talents has agreed to take on a task of such major importance to ASZ.

The Name Change: As I announced in a letter accompanying the elections ballot last month, the membership voted two-to-one in favor of changing the name of our society to its prior subtitle, The Society for Integrative and Comparative Biology. We will institute the change in January 1996. We have commissioned a professional artist to draw up several logo designs for presentation to the ASZ Executive Committee, so that we may choose an attractive new logo to accompany our new name.

Meeting Venues: Our convention manager has been working diligently over the last several months to locate sites for our annual meetings in January of 1998 and 1999. As our members requested, we will continue to hold meetings in different parts of the U.S. each year, with the 1998 meeting to be in the eastern part and the 1999 meeting in the west. It should be noted that we will not have a 1997 meeting as we move from a December time frame to a January meeting in the winter of ’97-98. The 1998 and 1999 meetings sites will be announced at the Annual Meeting in December.

1995 Meeting: The final program for the 1995 meeting in Washington is terrific! See the Program Officer’s message for a list of exciting symposia that will be presented. Contributed paper and poster sessions will maintain the excellent standards of past ASZ meetings. Our commercial exhibits will be the largest in several years, and our Washington hosts have arranged great venues for our less formal gatherings. For those wanting to take advantage of all that Washington, D.C. has to offer (museums, art, theater), our host hotel is offering a special convention rate for the weeks before and after the meeting. Be sure to come to Washington, D.C. in December!

A Somber Challenge: All professional zoologists must view the current congressional assaults on environmental protection and science support with great alarm. Bills written in both houses of congress will, if enacted, destroy the Endangered Species Act and allow the extinction of unknown number of species, and the abilities of major agencies (EPA, USFWS) to protect the environment will be severely limited. Funding for basic research will be drastically reduced. As people with more than just political opinions, professional biologists have an obligation to point out to their elected representatives in congress how irreparable the harm will be if these changes become law. Write to them! Offer your professional experience and advice. Warn them on behalf of future generations. There has probably never been a time in recent history when the expertise encompassed by our Society has been so important to the future of the U.S. environment.

See you in Washington!
Message From the Secretary

Susan E. Peters

We look forward to a full program at the annual meeting in Washington, D.C. Again, this year, our traditional divisional paper and poster sessions will be complemented by many interesting interdisciplinary symposia. You should have received the registration packet by now; use it soon to reserve your place in our nation's capital in December.

You will notice that big changes are afoot in the Society. In addition to our impending name change, we are looking at an expanding role for the American Zoologist. In addition, interaction with other journals is being explored and the vast opportunities opened up by the expanding internet need to be explored fully, as well. All in all, this is a very exciting time, and we hope all of our members will see this time as an opportunity to become more involved with the Society. Please drop us a line whenever you have interesting suggestions or bits of news that you wish to be included in the newsletter. Remember the newsletter is your communication line to the rest of the members.

Speaking of communication, the managers at Smith-Bucklin in Chicago have worked hard to produce the membership directory with addresses and phone numbers (plus E-mail addresses that accompanies this mailing). We hope you will find it useful in keeping in touch with friends and colleagues.
Message From the Program Officer

Frank L. Moore

We have a full schedule for this year's meeting in Washington, D.C., with more than 600 contributed and invited papers. In addition to the contributed oral paper and poster sessions, there are 10 symposia which cover a wide range of fields and topics. Information about each symposium is listed below.

**Bats, Insects, and Ultrasound**
December 28
Organized by William E. Conner, Wake Forest University.
Focuses on the production, detection, and utilization of ultrasound by bats and insects.

**Molecules to mudflats: Biological Adaptations in Estuaries (Applications to the Chesapeake Bay)**
December 27 & 28
Organized by Peter L. deFur, Environmental Defense Fund.
Addresses problems associated with living in an estuary, covering topics at the molecular, organismal, and ecological levels, as well as environmental policy.

**Amphibian Metamorphosis: An Integrative Approach**
December 30
Organized by Tyrone L. Hayes, University of California, Berkeley. Includes talks by ecologists, endocrinologists, and molecular biologists studying amphibian metamorphosis.

**Aquatic Locomotion: New Concepts and Data from Invertebrates and Vertebrates**
December 27 & 28
Organized by George V. Lauder, University of California, Irvine. Focuses on aquatic locomotion in invertebrates and vertebrates, including locomotion based on axial bending and appendage-based swimming.

**Forces in Developmental Biology Research: Then and Now**
December 29
Organized by Louise Luckenbill-Edds, Ohio University.
Examines the historical roots of current concepts and research models in embryonic development.

**Avian Biology**
December 27-29
Organized by Mary Ann Ottinger, University of Maryland, ASZ-wide symposium with sessions on growth, development and metabolism, communication and neuroethology, reproductive behavior and endocrinology, immune function and environmental stress, behavioral ecology and experimental functional morphology.

**Phylogenetic Systematics, Biogeography and Marine Biodiversity**
December 29 & 30
Organized by Lynne R. Parenti, Smithsonian Institution.
Focuses on identifying general patterns of character evolution, animal phylogeny, and biogeography in the marine realm.

**Comparative Aspects of the Control of Arterial Blood gases: Ventilatory and Cardiovascular Perspectives**
December 30
Organized by Carl Reiber and Tobias Wang, University of Nevada, Las Vegas.
Includes speakers studying the regulation of arterial blood gases in invertebrates and vertebrates.

**New Frontiers in Barnacle Biology**
December 29
Organized by Frederick R. Schram, University of Amsterdam, and Jens T. Hoeg, University of Copenhagen.
Focuses on the future development of the science of cirripede biology and honors William A. Newman.

**Behavioral Toxicology: Mechanisms and Outcomes**
Dec. 27
Organized by Daniel Weber, University of Wisconsin-Milwaukee.
Focuses on behavioral alterations due to exposure to environmental contaminants, including the behavioral responses and underlying physiological mechanisms.
Message From the Treasurer

Mary Beth Saffo

This is an exciting time for ASZ! Thanks to Mike Hadfield's excellent leadership, we have embarked on a number of initiatives that will position ASZ as the leading organization for comparative and integrative biology in the coming decades.

Most of our initiatives — a change in logo, contemplated changes to *The American Zoologist*, exploration of various electronic communication and electronic publishing ventures, the annual Society-wide symposium, and additional support for regular symposia — mean an increased spending of funds. Because these initiatives are new, they are also financial experiments. Maintaining and increasing our key sources of income — membership dues, meeting attendance, and *The American Zoologist* subscriptions — will ensure that we can continue to support these exciting innovations. Therefore, I encourage your involvement in ASZ at this critical time. Your active participation in ASZ not only invigorates the scientific and education programs of the society — it also helps pay our bill! Help our experiments succeed!

We will continue to reward members for timely payment of dues which saves ASZ significant mailing costs. Thus, regular members who pay their dues by December 15, 1995 will only pay $96 a year. (This will also be the rate for new members, whenever they join during the year). Renewing members who pay their dues after December 15, will be charged $110 for a one-year membership.

If you have any questions regarding either of these issues, or other financial issues regarding the Society, feel free to contact me directly or through ASZ’s business office.

Public Affairs

Peter L. deFur and Hans Laufer

We have several exciting events planned for the upcoming annual meeting in Washington, D.C. designed to take advantage of the presence of policy and political expertise in the city. We have been working to secure a keynote speaker who will address questions concerning the use of scientific research in federal policies.

Our Public Affairs panel discussion on the first evening will focus on the relationship between research scientists and federal agencies’ policies and activities. As a result of discussions with the science writers course at MBL in Woods Hole, we expect to host several science writing fellows at this year’s annual meeting.

Finally, the PA Committee will sponsor a media training workshop for seminar organizers, society and divisional officers and committee members. The PA Committee members will be contacting divisional officers and symposium organizers to prepare press materials and contact the media prior to the meeting. With all these activities, we are hoping to get ASZ and its members more positive coverage in both local and professional publications.
Welcome Back! I hope you all had a good, productive summer, and are making plans to attend the winter meeting in December. It’s been a busy time back at the business office. In addition to working on the annual meeting, fall newsletter and everyday session association activities, we have made some changes in our professional staff. To better serve the ASZ as we head into the future, the following individuals have joined the ASZ team:

**Administrative**
Pam D’Arigo joins ASZ as administrative manager. Her responsibilities include managing daily office operations and providing key support to myself and the Executive Committee.

Micki Unkrich is the new ASZ membership services coordinator. She is working with Pam and handling all aspects of membership.

Kathy Lundgren serves as an administrator for the ASZ journal, *American Zoologist*. Her responsibilities include processing subscriptions and managing mailings. Kath also handles the coordination of ASZ grant funds.

**Convention & Trade Show Division**
Wendy Michelson is the new manager for annual meetings and futures. She has overall responsibility for meeting planning and is the liaison with the program officers and local chairs.

Ann Leuck joins ASZ as abstract administrator handling the abstract process for the annual meetings. Anne also coordinates exhibits.

Corrine O’Brien facilitates the student support program, coordinates the best student paper award and spouse tours at the Annual Meeting as well as handles logistics of the Annual Meeting.

**Marketing & Media Relations**
Tom Toussaint joins ASZ as marketing coordinator. His responsibilities include coordinating the newsletter, final program, membership directory and managing all marketing activities and media relations.

Our staff is here to serve you, the members of ASZ. If you have any questions, comments or concerns, please contact either myself or any one of the professional staff. Your feedback and input are not only welcomed, but encouraged.

I look forward to seeing you all in December.
Announcements

On-Line: The Institute for Scientific Information (ISI) announced the pilot sites that will be involved in the development of ISI's Electronic Library project. They are Brookhaven National Laboratories, Lehigh University, New York Public Library, Purdue University, University College London, and Glaxo Research and Development, Ltd. The project is designed to test electronic journal distribution. It will provide access to ISI's Current Contents/Life Sciences, providing contents, bibliographies and abstracts for 1,350 journals. In addition, full images of the journals to which each institution subscribes will be delivered directly to the user's desktop via the local area network (LAN). The pilot participant's evaluation of the technology will be crucial in determining subsequent developments. The evaluation period will last for at least 18 months, after which the refined technology should make it easy to cruise the literature from your own desktop computer.

In January BIOSIS and CD Plus Technologies announced their collaboration to bring Biological Abstracts and Biological Abstracts/RRM to our desktops using compact discs and on-line technology, using the powerful OVID search software. Other BIOSIS CD-ROM products include Zoological Record On-line. They also offer BIOSIS Document Express, a document delivery service. For more information on these products contact Irene D. Jacobs, BIOSIS Marketing and Sales, 2100 Arch St, Philadelphia, PA 19103-1399, 1-800/523-4806.

The AIBS has published a supplement to its journal, Bioscience, entitled "Science and Biodiversity Policy." Compiled from speeches at the 1994 AIBS Meeting, this 96-page supplement contains important information on the many aspects of biodiversity and public policy. Authors include Hal Mooney, Thomas Lovejoy, Jane Lubchenco, Kent E. Holsinger, Quintin D. Wheeler, Monica G. Turner, Frank W. Davis, W. Franklin Harris, Lance H. Gunderson, Jerry F. Franklin, Louise Willcox and H. Ronald Pulliam. An excellent teaching resource, the supplement covers topics such as "the role of science in formulating policy" and "the public's understanding of biodiversity." Single copies are available for $10.50; bulk orders are available at a discount. For more information, contact Dr. Julie Ann Miller, 202/628-1500 x 243; or to order, Genevieve Clapp, 202/628-1500 x 251.

The Scientists Center for Animal Welfare (SCAW) recently published several volumes of interest to our membership: 1) The proceedings of a half-day seminar entitled "Wildlife Mammals as Research Models: In the Laboratory and Field," held last year at the annual AVMA conference in San Francisco. Editors are Kathryn A. L. Bayne and Michael Kreger, of The Animal Welfare Information Center. The price of the volume is $20 (six or more copies - $15 each). 2) In addition, SCAW is publishing the proceedings of "Current Issues and New Frontiers in Animal Research," co-sponsored by the University of Texas Health Science Center in San Antonio. Editors are Kathryn A. L. Bayne, Ernest D. Prentice, and Molly Greene. Chapters include: updates on research animal regulations, current IACUC issues, biocautemation, biosafety and biohazards in the lab use of animals, and new frontiers of animal research and well-being. 3) "The Well-Being of Birds in Laboratory and Field Research" is also out this year. This publication includes chapters on general behavioral considerations in the laboratory; disease diagnosis and control; anesthesia, analgesia and euthanasia; surgical and post-surgical care; husbandry and care for psittocines, poultry, pigeons, passerines, raptors and quail; and field techniques, field research: a veterinarian's view. For more information, contact: SCAW, Golden Triangle Building One, 7833 Walker Dr., Ste. 340, Greenbelt, MD 20770; 301/345-3500; fax: 301/345-3503.
Educational Council News

Susan B. Cook

The Educational Council is organizing a set of informal roundtable discussions at the upcoming annual meeting in Washington, D.C., to provide a specific place and time for teaching faculty and graduate students to share ideas and exchange viewpoints.

Council members will lead discussions on what works and what doesn’t in several areas including: 1) introducing undergraduates to research 2) using technological tools in the classroom, and 3) helping new instructors teach effectively at the college level.

During the roundtable session, we also hope to display a sampling of innovative teaching materials and curricula (both low tech and high tech) for everyone to examine.

If you have used or developed materials that you think other ASZ members should know about, please send me an E-mail and bring the book, curriculum guide, reprint, video, CD-ROM, etc. to Washington in December. We are particularly interested in innovative curricula and materials relevant to the roundtable topics, but other material is welcome as well. It is also not too late to add roundtable themes. If you have ideas or comments, please E-mail to scook@hboi.edu.

News Flash: The Council roundtables will be held from 3-5 p.m. on Thursday, December 28. Please plan your schedule in D.C. accordingly!

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DEVELOPMENTAL BIOLOGY OF SEA URCHINS X

Marine Biological Laboratory, Woods Hole, MA • March 6-10, 1996

**Plenary Sessions**
- Gamete Recognition
- Gastrulation
- Centrosomes and Cell Cycle Control
- Gene Regulation
- Signal Transduction
- Ca++ Activation
- Spatial Expression of Genes
- Physiology, Evolution and Ecology

**Special Sessions**
- Fertilization
- Acrosome Reaction
- Phosphorylation in Egg Activation
- Chromatin
- Transcription Factors
- Extracellular Matrix in Embryogenesis
- Cell Adhesion
- Cortical Reaction
- Imaging Regulatory Processes
- Coelomocytes and immunity
- Proteases and Embryogenesis
- Advanced Larval Physiology

For information and applications please contact:

Susan G. Ernst, Department of Biology, Tufts University, Medford, MA 02155; Tel. 617/627-3541; Fax. 617/627-3805; E-mail: sernst@pearl.tufts.edu

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SHOALS MARINE LABORATORY

Summer 1996 Credit Courses

Cornell University and the University of New Hampshire are proud to announce the 31st season of field-oriented credit courses in the marine sciences at their Isles of Shoals field station of Appledore Island, Maine.

Field experience is an integral part of all courses. Extensive use is made of sites available on Appledore Island including the diverse intertidal zone, wading bird rookeries and seabird colonies. Cruises to observe and photograph the region's common species of great whales and pelagic birds are included in all shoals programs where it is academically relevant. In addition, boat excursions are often made to take advantage of the rich resources of the Gulf of Maine, study estuarine habitats, observe a nearby colony of harbor seals and provide first hand experience on board a working coastal vessel.

For further information write, or call, or E-mail: Shoals Marine Laboratory, O-14-4 Sitram Hall, Cornell University, Ithaca, NY 14853-7101, 607/255-3717, Shoals-Lab@cornell.edu
Message From the Chair

David Duvall

Several important things happened during the Executive Committee (EC) meeting of the Animal Behavior Society (ABS) during the annual gathering of ABS this summer at the University of Nebraska at Lincoln. First, the EC unanimously supported our two nominees for DAB Chair, Steven Nowicki and Harrington Wells. Both of these respected ASZ and ABS members are first-rate, and I am confident that both will do a super job. Additional biographical information on Drs. Wells and Nowicki is provided below.

We also discussed the flagging participation in DAB activities at recent ASZ meetings, in spite of our large membership. Those of you who were present during our DAB Business Meeting last year in St. Louis may remember this same issue was a significant point of discussion. We even considered the potential wisdom of throwing in our lot with the Division of Ecology (DE), as to form one new and more interdisciplinary division, possibly, for example a “Division of Ecology, Evolution, and Behavior.”

Though no formal follow-ups were attempted with the ecologists, it is possible they might be interested. They are experiencing some decreased participation at ASZ meetings. Clearly, before any explorations or initiatives of any formal sort be developed or proposed, I wanted to present this matter to you, the membership, and the EC of the ABS. The latter group acknowledged the problem, noting that it was not new and that this might be one way to go. However, it seemed more people, favored an approach mentioned by Lee Drickamer, ABS President (and former DAB Chair), who suggested that we first attempt a bit of realization in DAB-ABS ties and programs. I agree. ASZ President Mike Hadfield, suggested the same with enthusiasm and contacted both Lee and myself in this regard, suggesting a high-profile, joint DAB-ABS Symposium for the 1996 ASZ Meeting in Albuquerque. I have given the proposal my enthusiastic support, and it is my understanding that such a project is indeed in the works. Interested members should contact Lee for additional information. Please contact me or any other DAB Officer with your thoughts on future directions for our division. I can see advantages in going it alone, that is, remaining the DAB, or throwing in with the DE in some way. We as a group might want to watch and see how things go through the Albuquerque meeting before deciding.

I’ll be in Washington, D.C. and I hope to see you there as well. Our DAB-sponsored symposia look to be strong and interesting. We are sponsoring William E. Conner’s symposium on “Bats, Insects, and Ultrasound” and Dan Weber’s symposium on “Behavioral Toxicology: Mechanisms and Outcomes.” Both are sure to be interesting to colleagues in other divisions as well as to DAB members.

Finally, this will be the last time I correspond with you via this venue, as the next DAB Chair takes over after the Washington, D.C. meeting. It has been a pleasure working for the ASZ on your behalf. Behavioral biology, broadly defined, is a strong, fascinating, and multi-disciplinary field. No matter which way our division may go in the future, none of this will change. In other words, you’ll be seeing me at future ASZ meetings for a long time to come! Best of luck and every success in our future endeavors. I look forward to seeing you in Washington!
DAB 1995 Election for Division Chair

This newsletter includes the ballot for the election of DAB Chair. The three-year term for the newly elected chairperson (1996-98) will begin following the annual DAB Business Meeting in December 1995. Two accomplished colleagues have agreed to stand for election: Dr. Steve Nowicki (Zoology, Duke University) and Dr. Harrington Wells (Biological Sciences, University of Tulsa). Please mail your ballot as soon as possible.

The DAB nominating committee included Dave Duvall, Chair, Steve Beaupre, Brent Graves, and Anna Ross. Special thanks goes to Dave -- he got the job done. The Executive Committee of the Animal Behavior Society has also approved the nominees.

Following is biographical information about each nominee.

STEVE NOWICKI is associate professor of Zoology, Neurobiology and Experimental Psychology at Duke University. He received his Ph.D. in Neurobiology and behavior from Cornell University in 1985 - His research concerns...

My research concerns animal communication, especially the production, development and evolution of animal signals. My current work centers on birdsong, but other animal taxa -- from crustaceans to primates -- are also studied by members of my laboratory. The function of the avian vocal tract in sound production and the consequences of production constraints for the evolution of birdsong are one major focus of my work. Another focus concerns the developmental and evolutionary origins of complex song repertoire organization in birds. At present, my work is funded by both the NSF and the NIH.

I have been a member of ASZ since 1988 and a member of the ASB since 1976. I have been a member of the Bioacoustics Technical Advisory Group of the Acoustical Society of America since 1992, and have served on the Psychobiology Behavior and Neuroscience Review Committee of the National Institute of Mental Health since 1994.

HARRINGTON WELLS is an associate professor of Biology at the University of Tulsa. He received his PhD. in Evolution and Systemic Biology from the University of California at Santa Barbara in 1979. His research concerns monarch butterflies and honey bees.
Judges Needed for the 1995 DAB Student Paper Awards

The Division of Animal Behavior offers three different student paper awards. If you do not have a student competing for this year’s awards and are interested in serving as a judge for either oral or poster papers, please contact David Duvall.

Mini-Symposia

Do you want to address a “hot topic” at a future ASZ meeting? Do you need a shorter lead time than the two years required for a symposium? You can work with our Program Officer to coordinate about seven speakers for a dedicated oral paper session. ASZ will publicize this on the transmittal form to solicit related papers and “Mini-symposia” would not require publication in the American Zoologist.

Request for Symposium Ideas

Brent M. Graves and Dave Duvall are actively seeking proposals for symposia at future ASZ meetings. They are interested in building interest and participation in ASZ and in their Division. Please contact one of them if you have an idea for a DAB symposium.

Meetings of Interest

1996 Meeting of the Animal Behavior Society
The 1996 Animal Behavior Society meeting will be held August 3-8, at Northern Arizona University, Flagstaff, AZ.

Sixth International Behavioral Ecology Congress
The Sixth International Behavioral Ecology Congress meeting will be held September 29-October 4, 1996, at the Manning Clark Centre, Australian National University. A number of pre- and post-conference tours are being planned. To receive the registration circular and call for papers, please contact ACTS, GPO Box 220, Canberra, ACT, 2601, Australia (Fax 61.6.257.3256). For further information on the scientific program, please contact Andrew Cockburn, Botany and Zoology, Australian National University, ACT, 0200, Australia (E-mail isbe@anu.edu.au).
Message From the Chair

Walton W. Dickhoff

This is my message piece we will have a new plate of Divisional Officers at our annual meeting in December. On behalf of the members, I thank our outgoing program officer, Mike Moore, and Secretary Brian Barnes, for their fine efforts. In this no-frills age, service to this society is testimony to both individuals' dedication to our field and colleagues. Congratulations to Bob Dorey, Henry John-Alder and Stacia Sower, our newly-elected officers.

During the last four years, as chair-elect and then as division chair, I have had a front seat view of the major challenges focus our division. I have been impressed with the members of our division and their response to the challenges. Last year's annual meeting in St. Louis was full and exciting. Comparative endocrinologists are an impressive group — professional, collegial, and congenial - a lot like a family. It has been an honor and pleasure to represent you.

We need to keep our discipline strong and growing. I would like to remind you of Mike Hadfield's challenge to each of you to recruit at least one new member. The benefits are worth it, discounts to journals, meetings, free books from symposia, etc.... It's a good deal - sign someone up today!
Notes From the Secretary-Elect

Henry B. John-Alder

The current DCE Secretary, Brian Barnes, is spending his sabbatical in Norway. This issue's notes were compiled by the Secretary-Elect. The results of the DCE election are as follows:

Chair-Elect: Robert Dores
Program Officer: Stacia A. Sower
Secretary: Henry B. John-Alder.

Dr. David O. Norris wishes to inform the members of DCE of the following symposium:
"International Symposium on Amphibian" "Endocrinology"
The third international meeting of amphibian endocrinologists will take place June 18-22, 1996 at the University of Colorado in Boulder, Colorado. Following are topics that will be covered: are developmental endocrinology, reproduction, advances in molecular endocrinology, neuroendocrinology, and environmental endocrinology. Space is limited, so sign up today!

Those interested in attending and/or in presenting formal papers and posters should contact Dr. David O. Norris, Department of EPO Biology, Campus Box 334, University of Colorado, Boulder CO 80309-0334 or E-mail: norrids@spot.colorado.edu for additional information.

The 1995 winter meeting in Washington promises to be very rewarding. As usual, DCE will make a substantial contribution to the program at large. Our divisional symposium is entitled "Amphibian Metamorphosis: An Integrative Approach." Information can be obtained from Tyrone Hayes, Department of Integrative Biology, University of California, Berkeley, CA 94720; E-mail: tyrone@garnet.berkeley.edu.

Remember, the ASZ is an inherently integrative society. In this spirit, I encourage members of DCE to attend sessions offered by other divisions and, when presenting papers, to make a special effort to address those in attendance who are from other divisions.

In addition to the scientific interest we zoologists seek at the ASZ, the Washington meeting offers a variety of activities for family members and companions as well. All of the museums and other D.C. attractions will be open, and the number of visitors will be light compared to the summer months. In addition, we will not have to worry about the weather being too hot. I speak from personal experience in encouraging members to bring their families and make a holiday of it. Washington is lots of fun at the end of December. See you there!
Message From the Chair

Louis E. Burnett Jr.

There has been a lot of activity within the division since the last newsletter: 1) we have had a divisional meeting, 2) we were a part of a major international conference (IUBS), 3) we appointed a new editor for one of our sponsored journals, 4) we have been working hard to recruit new members to ASZ, and we have been busy arranging an excellent program for the upcoming ASZ meeting in Washington, D.C. Our divisional officers will report to you there on some of these aspects of the operation of the division.

I would like to use this space to make two announcements. First, Dr. David Tapley has retired as the divisional representative on the Graduate Student/Postdoctoral Affairs Committee. David has served the division well for several years and I’d like to thank him for all his hard work. Brian Gaschen of the University of Alabama is replacing David, and he will represent the interests of graduate students and postdocs in the affairs of the division.

Second, I am pleased to announce that Dr. Charlotte Mangum of the College of William and Mary has been appointed the new editor of Physiological Zoology, a journal sponsored by the Division of Comparative Physiology and Biochemistry. Recall that Dr. Warren Burggren last November expressed his desire to step down as editor of PZ. This triggered action by the divisional executive, as prescribed in our by-laws, to search for a new editor. A solicitation of proposals for an editor of PZ was included in the Fall 1994 Newsletter. We received three excellent proposals. We consulted extensively with Dr. Burggren as we considered each of the three proposals and, in addition, sought the advice of editors of other journals. Our recommendation of Dr. Mangum to the publisher, the University of Chicago Press, was accepted in the spring and the transition between editors has already taken place. Dr. Mangum’s broad research interests and her editorial experiences will be a great asset to Physiological Zoology.

I hope you will join me in congratulating Dr. Burggren and his associate editor, Dr. Stan Hillyard, on the excellent job they have done in establishing PZ as one of the strongest journals in our field. We are indebted for their hard work and professionalism. I hope you will also join me in congratulating Dr. Mangum on her appointment as editor. Your continuing support of ASZ and its journals is important to the Society.
Thanks to all of you who attended the IUBS 4th International Congress of Comparative Physiology and Biochemistry in Birmingham, UK, this August. It was a good meeting filled with so many interesting symposia that choice was the only problem. An extensive menu of excellent posters was also always available in a large centrally located site (with hot coffee and other beverages) which enhanced opportunities for poster viewing and scientific dialogues with friends and colleagues. The conference center was surrounded by friendly pubs and eateries that facilitated continuing conversations - just another example of the significance of form and function. The social program included receptions and dinners, including theme dinners where participants sorted themselves into research interest groups to attend a vintner’s restaurant in Stratford upon Avon, an old English music hall, a Balti (Indian) restaurant, a Victorian restaurant, or a pub tour followed by dinner in the picturesque ancient village of Bewdley. The Congress abstracts have been published in *Physiological Zoology*, for those of you who were unable to attend the meeting and want to catch up on the science.

The next IUBS Congress will be in North America in 1999, so there should be even more ASZ Division of Comparative Physiology and Biochemistry members there. These gatherings are a wonderful opportunity to meet with an international slate of friends and colleagues, and to obtain fresh ways of looking at questions. Now’s the time to start dreaming up cool topics for Calgary, located between the Canadian Rockies with Banff, Jasper, the Burgess Shale to the west and the dinosaur lands of the Great Plains to the east. Representatives from all the societies that comprise IUBS will discuss symposium topics at the IUPS meeting in Russia in 1997 (for the practical reason that it will probably be the next time that the representatives will be gathered together), so send your ideas to your program officer before then.

The December ASZ meeting in Washington D.C. promises to be a great gathering. The Division of Comparative Physiology and Biochemistry is sponsoring two symposia* and co-sponsoring five others in cooperation with other divisions:

1. *Molecules to Mudflats: Adaptations to Estuaries.* This symposium examines the ways animals adapt to and cope with the extreme and changing conditions in estuaries. The speakers will discuss ecological, physiological and biochemical aspects of life in estuaries, including implications for managing and restoring these systems.
   Organizers: Peter deFur and Lou Burnett.

2. *Comparative Aspects of the Control of Arterial Blood Gases: Ventilatory and Cardiovascular Perspectives.* This program focuses on a synthesis of the integration of the control over cardiovascular, ventilatory and hematological functions of blood gases. The major themes include the regulation of cardioventilatory function, and the comparative and developmental aspects of cardioventilatory functions.
   Organizers: Tobias Wang and Carl Reiber.

3. *Aquatic Locomotion: New Approaches to Invertebrate and Vertebrate Biomechanics.*
   This symposium is designed to integrate new concepts and data from the study of aquatic locomotion in both invertebrates and vertebrates. Locomotion resulting from both axial bending, as in fish, salamanders, leeches and marine mammals; and appendage-based swimming, as in insects, fish, crabs and mammals, will be covered.
   Organizers: George Lauder and John Long.

4. *Behavioral Toxicology: Mechanisms and Outcomes.* The behavioral goal of this symposium is to examine the links between toxicant-induced physiological changes and the behavioral alterations due to environmental contaminant exposure.
   Organizer: Daniel Weber.

5. *Phylogenetic Systematics, Biogeography and Marine Biodiversity.* This symposium is a timely, interdisciplinary
review of our knowledge of the systematics of animal life in the oceans. It includes updates on many different phyla from a variety of approaches and should be of general and physiological interest to DCPB members.
Organizer: Lynne Parenti

6. Avian Biology. This is an ASZ-wide symposium that encompasses a wide range of topics that span molecular and cellular processes to organism and system approaches. Examples include growth, development and metabolism, communication and neuroethology, reproductive behavior and endocrinology, neurochemical modulators of sexual behavior, immune function and environmental stress, as well as behavioral ecology, and experimental functional morphology.
Organizer: Mary Ann Ottinger

There will be other symposia in addition to these sponsored by DCPB, plus contributed papers, poster sessions, the Bartholemew Award lecture, and all the regular activities associated with our annual meeting. Regardless of the program, we need you to be there in order for it to be a success - Hope to see you in D.C. in December.

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Report From Chair-Elect

Nora B. Terwilliger

A very rewarding meeting of the Division of Comparative Physiology and Biochemistry was held on May 21-23 at Fort Johnson in Charleston, S.C. Papers and posters were presented and enjoyed by 47 participants from Main, Florida, and Oregon. Organized by Lou Burnett division Chair from the College of Charleston, the meeting was a most productive way to share our newest findings in an informal atmosphere enriched by the hospitality of the South. The Low Country Dinner served with “Frogmore Stew” at water’s edge was definitely a high point. The divisional officers look forward to receiving proposals for additional meetings of this nature.
The Division of Comparative Physiology and Biochemistry is involved with planning the International Union of Physiological Sciences Congress to be held in St. Petersburg, Russia in July, 1997. We will keep you informed about the program as it develops. The 5th International Congress of Comparative Physiology and Biochemistry is scheduled for August, 1999 at the University of Calgary, Alberta, following in the footsteps of the excellent meeting this past August in Birmingham, England. Opportunities for international communication among comparative physiologists thus continue to flourish.
I hope that many of you will be presenting papers at the Washington meeting in December and that many more, particularly those of you in the midcoast region, will be attending. At the Washington meeting, I will be soliciting ideas regarding future activities of the division and look forward to seeing you there. In the meantime, please send your thoughts and ideas to me by e-mail (towle@lfmail.lfc.edu).
Bylaws Amendments

These bylaws amendments will be discussed and voted upon at the next business meeting of the Division of Comparative Physiology and Biochemistry in December at the Annual Meeting of ASZ in Washington, D.C.

{additions} [deletions]

Article IV. Officers

Officers of the Division shall be a Chair, a Chair-elect, {a past chair,} a program officer and a Secretary. They shall be elected by a majority vote of the members conducted by a mail ballot prior to the annual meeting by a procedure consonant with the Bylaws of the American Society of Zoologists. The officers shall constitute an Executive Committee responsible for divisional affairs [between annual meetings]. The business year of the division shall run January 1 through December 31.

Article VII. Past Chair

(This is a new article added after the current Article VI. Thus, Articles VII through XIV are incremented by one.)

The Past Chair shall assist the Chair and other members of the divisional Executive Committee in handling divisional affairs. The past chair assumes this position upon completion of a term as chair and shall serve for two years. The past chair shall serve as a member of the Nominating Committee.

Rationale: In our discussions with other divisional officers, and especially, past divisional chairs, we perceived that divisional chairs have a great insight into the operation of the division and the Society. Their potential for making contributions to the division in an official capacity upon completion of a term as chair is very high. In fact, at least one chair felt that he had just learned the ropes good enough to be an effective chair at the end of his term. A random survey of divisional officers indicates that "past chairs" are often heavily consulted in matters important to the division. The divisions of Developmental and Cell Biology, Ecology, and Invertebrate Zoology all have Past Chairs serving on divisional Executive Committees. Therefore, we think it is wise to create one additional member of the divisional Executive Committee to take full advantage of the expertise and experience of the “past divisional chair.”

Article X. (New Article XI.) Meetings

A business meeting of the division shall be held annually, normally concurrent with meetings of the American Society of Zoologists. Notice of this and other meetings shall be sent {at least} sixty (60) days in advance to all members of division.

Article XIV. (New Article XV.) Amendments

The Bylaws may be amended at any annual meeting by a two-thirds vote of those present provided that notice has been given to all members {at least} sixty (60) days in advance {or by at least two-thirds vote of the members responding to a mail ballot. In either case, it is the responsibility of the divisional executive to assure that opportunities for discussion, either verbal or written, occur before a ballot is taken.}

Article XIII. Publications

(There is new wording here that combines some of the original wording. Simply, the current bylaws are amended to reflect three-year terms for members of the editorial board with one additional three year term possible. These changes are consistent with the recently negotiated terms with Comparative Biochemistry and Physiology, and provide a healthy turnover of editorial board members.)

b) The Editor of PZ is appointed by the Board of University Publications, University of Chicago (BUPUC) based on the recommendation of the DCPB Executive. The editor shall serve for a term of five years, with reappointment for only one additional term permissible. The Editor may request the
appointment of an associate editor(s). The appointment(s) of associate editor(s) will be made by the BUPUC with the approval of the DCPB Executive. The Editorial Board of Physiological Zoology shall be appointed by the editor, following consultation with the DCPB Executive. Early in the fifth year, the DCPB Executive will review the performance of the editor and recommend to BUPUC whether or not the editor should be appointed to a second five-year term. In the event that the editor resigns early or is otherwise unable to complete his/her term, the BUPUC will consult with the DCPB Executive and appoint a mutually agreeable replacement, who will then serve a five-year term and be eligible for an additional term. The term of office of the associate editor(s) will be coterminous with that of the editor. The associate editor(s) shall serve for a term of five years, with reappointment for one additional term permissible; members of the Editorial Board shall serve for terms of three years, with reappointment for one additional term permissible. No individual will be appointed for more than two consecutive terms.

The Editor or his/her designated representative will present annual oral and written reports on the activities of the journal at the Business Meetings of DCPB.

The overall intent of this section, excluding the business aspects of journal operations that are the purview of BUPUC, and the day-to-day editorial matters that are the purview of the editorial staff, is that all aspects of the relationship between BUPUC, the editorial staff and DCPB will be carried out on the basis of equal authority, shared responsibility and collegiality.

**Message From Graduate Student Rep Brian Gaschen**

The main function of the graduate student/post-doc representative is to communicate the graduate students’ point of view to the Executive Committee. In order to accomplish this, I need to hear from you, my constituents, to find out where you stand on the issues confronting ASZ and our profession as a whole. There are several ways we can accomplish this.

For those of you attending the ASZ meeting in Washington this year, we can meet informally as a group and talk. Any of you who are interested in meeting, e-mail me at the address below and I’ll let you know when and where we’ll meet.

Another way we can communicate is through e-mail. I’m currently investigating the possibility of setting up a listserver mailing list devoted to the concerns of graduate students in biology/ASZ/DCPB. If you are interested in being included on the future list (assuming it is approved administratively), send me your name and address, and I’ll put you on the list. Additionally, write me directly with your concerns or ideas, and I’ll respond as best I can.

The main thing I would like to accomplish during my term is to increase graduate student involvement in ASZ/DCPB. I’ve attended the last few ASZ meetings, met many colleagues there, then not thought about ASZ again until the next round of abstracts are due the following September. I don’t think my experience is unique. ASZ is a society of individuals who have common goals, and it should be a way to enrich ourselves both professionally and personally year round. It’s especially important now, as funding is trimmed at both the federal and local levels, that ASZ remain a strong voice in support of the basic sciences that many of us do. What we need to do to make ASZ stronger is to participate in meetings, encourage others to participate, and communicate with one another year-round.

If you have ideas, concerns or comments, feel free to e-mail me at biof021@uabdpod.pdo.uab.edu or write to me at the Department of Biology, University of Alabama at Birmingham, Birmingham, AL 35297.
Message from Ray Huey Bartholomew Award Committee Chair

Send contributions now! The Division of Comparative Physiology and Biochemistry received a $10,000 Matching Challenge for the Bartholomew Award Fund. The Bartholomew Award recognizes a distinguished young investigator (within seven years post Ph.D.) in comparative physiology, comparative biochemistry, and related functional fields. One of the benefits of being recognized is the recipient presents a special lecture at the annual meeting. The first two, which were Barbara Block and Peter Wainwright who spoke at the Los Angeles Meeting and St. Louis meeting respectively. The award, which is sponsored by the Division of Comparative Physiology and Biochemistry, was named in honor of George A. Bartholomew, who championed young students throughout his career.

We have recently begun to build an endowment, which will be used to cover the expenses associated with the awardee’s travel to the ASZ meeting. At least $20,000 will be required. This is a substantial amount; but the endowment has recently received a $10,000 contribution from a very generous (and anonymous) admirer of Bart. However, the donor has challenged us to match this amount. Consequently, we are urgently asking all of you to send in a contribution now. If you wish to make contributions in multiple years, we can easily arrange to a yearly reminder sent to you. Please make checks payable to: American Society of Zoologists (indicate Bartholomew Award Fund on the check) and send it to ASZ, P. O. Box 809278, Chicago, IL 60680-9278. Remember, because of the match, every dollar you contribute means TWO for the fund.

Message From Charlotte Mangum, PZ Editor

The office of Physiological Zoology has moved. As of July 1994, the address is Editorial Office, Physiological Zoology, Swem Library, College of William & Mary, Williamsburg VA 23187-8795, Phone 804/221-2954, fax: 804/221-2953 and Internet: physzo@facstaff.wm.edu.

Gregory Snyder (Dept. of EPO Biology, University of Colorado, Boulder) is associate editor. I’m sure that Greg is known to most of you for his work on respiratory and cardiovascular physiology of higher vertebrates. As managing editor, we are very fortunate to have recruited Cheryl Jenkins, a recent Ph.D. from the University of Texas. Cheryl is already doing a wonderful job running the office, and she will be available most of the time to answer your questions. We are still working on the Editorial Board, which will play a more active role in selecting reviewers for manuscripts in their areas of expertise. We will also accomplish more of the communications by internet and fax, and we have a study planned to help us gauge our efficiency in comparison with other journals in the field. We have already completed another study, which told us that the overlap between past and present members of editorial boards of the different journals in comparative physiology and biochemistry is surprisingly small.

In the planning stage are changes in page format to improve efficiency and cut costs, electronic broadcast of the table of contents every other month (if you want this service, make sure that we have your Internet address!), and involvement in the Best Paper/Poster awards at the annual meeting. Remember, this is YOUR journal. Help us by suggesting subjects for invited perspectives (mini-reviews), with author if possible. Send us your own submissions. PZ has one of the widest distributions of any journal in the field. We are extremely fortunate to have as owner the University of Chicago Press, the largest journal publisher in North America and possibly the world. UCP is a highly professional, first-rate, non-profit organization. You can be sure that you aren’t generating megabucks for some stockholder when you donate your time to writing or reviewing for them.
Elections: Division Secretary

KAREN L. M. MARTIN is associate professor of Biology, Pepperdine University.


Professional Experience: Lecturer, University of Oklahoma (1980-83); Education Assistant, Lecturer, Oklahoma Museum of Natural History (1981-82); Assistant Professor, Oklahoma State University, Oklahoma City branch (1981-1984). Teaching Fellow, University of California, Los Angeles (1984-1990); Teaching Consultant (Campuswide), Office of Instructional Development, University of California, Los Angeles (1988-1989); Lecturer, University of California, Los Angeles (1990); Friday Harbor Postdoctoral Fellow, Friday Harbor Laboratories, University of Washington (1990-1991); Assistant Professor, Pepperdine University (1991-1994); Associate Professor, Pepperdine University (1994- present).

Major ASZ Divisional Affiliation: Comparative Physiology and Biochemistry.

ASZ Participation and Service: Member since 1985.

Other Memberships and Service: American Association for the Advancement of Science; Symposium on the "Biology of Intertidal Fishes", 1994; Best Student Paper Committee, 1994, American Society of Ichthyologists and Herpetologists; Council on Undergraduate Research; Symposium on the "Origin of Amniotes", Fourth International Congress of Vertebrate Morphology; Sigma Xi; Society of Vertebrate Paleontology; Western Society of Naturalists.

Research Interests: Air-breathing fishes, respiration of ectothermic vertebrates, intertidal physiological ecology, and the evolutionary transition from water to land by vertebrates.

GEORGE B. BOURNE is associate professor and associate head department of Biological Sciences, The University of Calgary, Calgary, Alberta, CANADA T2N 1N4, 403/ 220-5261; fax 403/ 289-9311; e-mail bourne@acs.ucalgary.ca.

Education: B.A. 1968 Drew University, NJ, M.S. 1971 Iowa State University, Ph. D. 1974 Iowa State University.

Academic (The University of Calgary): Instructor 1974-76, Assistant Professor 1976-80, Associate Professor 1980-.

Service: Academic Member, Western Canadian Universities Marine Biological Society 1987; Invertebrate Subcommittee Canadian Council on Animal Care 1989-93; Alberta Professional Examination Board in Biology 1991-.


Research Interests: Comparative cardiorespiratory physiology, biology of gastropods and cephalopods.

1996 Society Subscription Pricing for ASZ Members

| CBP/A,B,C | $202.00 |
| CBP/A     | $99.00  |
| CBP/B     | $99.00  |
| CBP/C     | $75.00  |
| PZ        | $50.00  |
Message From the Chair

John B. Morrill

Our program officer, Louise Luckenbill-Edds, has developed an excellent one-day symposium, "Forces in Developmental Biology Research: Then and Now," for the forthcoming annual meeting in Washington, D.C., the week of December 26-30, 1995. The symposia speakers have all had considerable interests in and personal experiences with the last century's progresses in comparative vertebrate and invertebrate embryologies, and those embryologists who set the stages for contemporary embryological studies. This should be an excellent symposium and I hope you will all take the opportunity to meet with the speakers. I also hope you will attend the divisional business meeting as well.

It is not too early to begin planning a symposium, workshop, or refresher course for next year's annual meeting in Albuquerque, New Mexico, December 26-30, 1996. Within a 500 mile radius of Albuquerque in the Southwest and California, we have members whose recent and current research would form the nuclei of symposia, etc., of considerable interest to our participating members. Without citing names, I encourage interested parties to contact Louise Luckenbill-Edds who can help with the various details for funding any formal divisional programs.

This fall we are providing ballots for three major divisional officers: chair-elect (4 years total), program officer (4 years total), and secretary (3 years). Our nominating committee of Hans Laufer, Charles Ellis and David Epel have organized an excellent slate of candidates for each office (see details on pg. 23). Please indicate your preferences on the enclosed ballot.

I urge members within 500 miles of Washington, D.C. to attend this year's annual ASZ meeting with their graduate and advanced undergraduate students. This will be a good chance to take advantage of the opportunities to prepare abstracts and present scientific posters or platform papers, and to attend presentations of other divisions of ASZ relevant to developmental and embryological zoologists.
Best Student Paper Award

The DOCB Division will sponsor a prize for the best paper/poster presented by a student at the 1995 ASZ Annual Meeting. The recipient of the award will receive $100. Students who have not yet been awarded their Ph.D.s are eligible, as are new Ph.D.s who have received degrees no more than 12 months prior to the annual meeting and are presenting a paper on their graduate work. The work must be original and carried out principally by the student. Please check the appropriate box on the abstract transmittal form to be considered for the award, or contact Program Officer Louise Luckenbill-Edds 614/593-2349.

Meetings of Interest

The American Society for Cell Biology will hold its 35th Annual Meeting December 9-13, 1995, in Washington, D.C. For more information contact the Executive Offices at 301/530-7153; Fax. 301/530-7139.

The Society for Developmental Biology regional meetings for 1996 are as follows: NE - in March at the MBL, Woods Hole, MA, organized by Lee Niswander and Steve DiNardo; Mid-West - in March at the University of Chicago, Chicago, IL, organized by Tony Mahowald; SW - in May at Texas Woman’s University, Denton, TX, organized by Fritz Schwalm.

The Society for Developmental Biology’s 1996 Annual Symposium will be held May 30 - June 4, at Vanderbilt University, Nashville, TN. Bill Jeffrey is the organizer of their event. For more information contact the Society’s Executive Office at 301/571-0646.

Message From the Program Officer

Louise Luckenbill-Edds

Along with the Division of History and Philosophy of Biology, our division is cosponsoring a one-day symposium entitled, “Forces in Developmental Biology Research: Then and Now.” This symposium will focus on the evolution of current concepts in developmental biology research by juxtaposing the historical roots of research with current concepts and models of research conducted on both invertebrate and vertebrate embryos. Specifically, speakers will examine the role of cytoplasmic determinants for specifying development and the fish embryo as a model for studying mechanisms of differentiation. The speakers and topics are:


Jack Collier, “The Localization Problem.”

Susan Ernst, “A Century of Sea Urchin Development.”

Richard Whittaker, “From Teratologies to Gene Expression: History of the Ascidian Model of Development.”


John Wourms, “Rise of Fish Embryology in the 19th Century.”

Linda Ross, “Zebrafish Model for Morphogenesis and Differentiation.”

Nominees for Divisional Offices

Chair-Elect (1996; Chair 1997-99)

Robert Andrew Cameron is a senior research associate in the Division of Biology at Cal Tech and an Instructor for the Embryology course at the MBL, Woods Hole. He received his Ph.D. in 1975 from the University of California at Santa Cruz. His research interests include the developmental and reproductive biology of marine invertebrates, larval ecology and settlement, biological imaging, and the population genetics of indirect developing marine invertebrates.

John P. Wourms is a professor in the Department of Biological Sciences at Clemson University. He received his Ph.D. from Stanford University in 1966. His research interests include the developmental biology of fishes, especially cell movements and interactions during gastrulation; the cellular basis of maternal-embryonic metabolic exchange in viviparous fishes; evolution of development; pattern formation in extracellular matrices; electron microscopy and computer-enhanced video microscopy; and the history and philosophy of developmental and marine biology.

Program Officer-Elect (1996; Program Officer 1997-99)

Barbara Conta Boyer is an associate professor in the Department of Biological Sciences at Union College, Schenectady, N.Y. She received her Ph.D. from the University of Michigan in 1969. Her research interests center around invertebrate development, including early embryonic determination, muscle and nerve development, and the identification of HOM-Hox genes in polyclad turbellarians.

Billie J. Swalla is an assistant professor in the Biology Department at Vanderbilt University, Nashville, TN. She received her Ph.D. from the University of Iowa in 1988. Her research interests include the molecular control of cellular differentiation, maternal factors controlling gene activation in ascidians, and how developmental genes influence morphology and life history of organisms.

Secretary (1996-1998)

Jessica A. Bolker is a Post-Doctoral Researcher in the laboratory of Dr. Rudolf Raff of Department of Biology at Indiana University, Bloomington, IN. She received her Ph.D. from the University of California at Berkeley in 1993. Her research interests center around developmental mechanisms of teleost gastrulation, molecular evolution, and comparative embryology.

Charles H. Ellis, Jr. is an associate professor in the Biology Department at Northeastern University, Boston, MA. He received his Ph.D. from The John Hopkins University in 1966. His research interests include the developmental and reproductive biology of marine interstitial turbellaria and invertebrate larval ecology.
Message From the Chair

Howard R. Lasker

As I am writing this message, the annual meeting is getting closer and closer (as does the deadline for my yet to be written abstract). DE is co-sponsoring two symposia this meeting", Molecules to Mudflats: Biological Adaptations in Estuaries, and Phylogenetic Systematics, Biogeography, and Marine Diversity. Both promise to be interesting symposia and should do what I think ASZ does best, bring together people with common interests that cut across traditional academic boundaries. I hope many of you will be able to attend.

I am looking forward to this year's meeting, but it is already time to start beating the bushes for symposia for future meetings. Symposia happen because brave souls in the Society decide they have an image of their field that they would like to share with the rest of us. (The other explanations are: 1) they want to make sure that their friends also go 2) they want to impress their dean or 3) they are just plain masochistic.) Regardless of the motivation, I would like to ask everyone to consider organizing a symposium. If coordinating a group of talks in your specialty would be important to your field or if you think it would be important for the rest of us to hear, consider putting together a proposal. Contact any of the DE officers if you are interested and we help you get started.

While I'm begging, I should also note that my term as Chair, as well as Don Levitan's term as Secretary, will expire at the end of 1996. We are currently seeking nominations for the election which will be held in the Spring newsletter. If you are interested in running for either of these prestigious positions, please contact Don or myself.

As some of you may have noticed, my stirring rhetoric in the last issue of the newsletter to vote to change the division's name was not followed by a ballot. That error has been rectified (I hope) in this newsletter. If the amendment to our bylaws is accepted, our new name will be the Division of Ecology and Evolution or DEE in ASZ-speak. That name comes closer to describing the interests of most of the Division's members, and I ask that you vote in favor of the name change.

I look forward to seeing you at the Washington meeting.
Message From the Chair

Larry T. Spencer

They say hope springs eternal and so it goes with respect to the election of new officers. We have made some progress since the last newsletter. Jane Maienschein has volunteered, if elected, to serve as chair-elect and then after the Washington D.C. meetings to serve as chair for the next two years. A brief biography appears following this segment of the newsletter. She has also volunteered to find individuals to fill the now vacant positions of secretary and program officer. If all goes as planned, we will be able to elect those officers at the annual meeting in Washington, D.C. If you wish to volunteer for either of those positions, please contact Jane at maienschein@asu.edu or 602/965-6105.

Louise Luckenbill has gone ahead and organized a symposium for Washington D.C. As mentioned in our last newsletter, Bill Hummon proposed at the St. Louis meeting that we co-sponsor with the Education Committee, a workshop/symposium at the December 1996 meeting in Albuquerque on the subject of "Bringing History/Philosophy of Biology into the Classroom: Who is Doing it and How is it Being Done?" I said that I would help to organize it. Who else out there is interested in assisting me in this process? I know that many of us integrate a historical/philosophical approach in some of our upper and lower division majors courses. Would you be willing to share with the rest of us how you go about doing that? I'm open to suggestions.

DHPB 1995 Election of Officers

Candidate for Chair:
JANE MAIENSchein
Current Position: Professor of Philosophy and Zoology, Department of Philosophy and Department of Zoology, Arizona State University, Tempe. Chair, Philosophy and Director Biology and Society program.
Research Interests: Interested in history and philosophy of biology, especially developmental and cell biology.
ASZ and Related Activities: Past President of International Society for History, Philosophy, and Social Studies of Biology. Has served in various capacities in History of Science Society, AAAS, Philosophy of Science Association, and currently serves on the Advisory Committee for the NSF Social, Behavioral, and Economic Sciences Directorate. Seeks to build stronger and more rigorous substantive connections between the biological sciences and the science studies communities.

Candidate for Program Officer:
KEITH BENSON
Current Position: Professor of Medical History and Ethics, Dept. of Medical History and Ethics, University of Washington; Director, College Studies Division, University of Washington; Executive Secretary, History of Science Society.
Research Interests: History of American Biology, History of Marine Stations and Marine Science Education.
ASZ and Related Duties: Past Chair and Program Officer, Division of the History and Philosophy of Biology; Chair, Committee on Research on the Profession, History of Science Society; Chair of the 150th Anniversary Celebration History Committee, AAAS.

Candidate for Secretary:
JOSEPH GRAVES
Current Position: Assistant Professor of Life Sciences, Arizona State University, West Campus.
Research Interests: Genetics and history/philosophy of science, with special interests in genetics of race and issues of pseudoscience.
Message From the Chair

Jan Pechenik

This will be a short message indeed, since our newsletter is filled with so many other important issues. Please read the Secretary’s Message carefully. Switching the Chair’s term to three years seems a wise move. As Jim Carleton warned me last year, two years is simply too short a time to learn the ropes, initiate things and follow any of those things through. Particularly with the many changes in ASZ operations now being discussed, it seems sensible for us to move toward greater continuity in leadership. I hope to see you all at the meeting in D.C., together with all of your graduate students. It promises to be a good one.

The Teacher’s Corner

Jan Pechenik

Having gotten very little feedback on my first column (Thanks for writing, both of you!), I thought I would try being a bit more controversial this time. Please share your thoughts for the next newsletter. Note that we have instituted a “Dear Libbie” column for this purpose. Libbie looks forward to hearing from you.

“Why do we have to learn this?” is apparently a refrain commonly heard during many invertebrate zoology courses. Students don’t seem to ask such questions — or at least, not as frequently — when taking courses in ecology, physiology or molecular biology, presumably because the relevance of the material is convincingly apparent. Having coherent, well-articulated goals seems to be more necessary for us. And goal of simply “getting through the textbook” isn’t enough.

What do you tell your students when they ask, “Why do we have to learn this?” One colleague believes it is good mental exercise, it stretches the mind to work so hard at memorizing so many things. I won’t disagree, but couldn’t one get the same benefits memorizing a telephone directory? Another colleague told me, clearly expecting to find a sympathetic ear, that his students didn’t even see the point of memorizing the names of all the larval stages. Well, perhaps it’s part of our job to help them see the point, assuming we know what the point is ourselves.

An invertebrate zoology course need not focus exclusively on issues of taxonomy and phylogeny. In my experience, most beginning students see phylogenetic controversies as just one more set of facts to be memorized. They seem too overwhelmed by the volume of new terminology and the strangeness of the material before them to see the point of prolonged phylogenetic speculation. This is an issue that members may wish to discuss further in subsequent newsletters.

A course can have a clear purpose only if it is organized around a well-articulated goal. My goal in teaching introductory-level invertebrate zoology is to prepare students to read

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Teacher’s Corner

Continued from page 26

the primary research literature of the field. I know ahead of time what studies we are going to discuss, and I emphasize, through lectures and assigned readings, the information that students will need in order to understand those studies.

I don’t ignore phylogenetic issues — they are, in fact, highlighted in one part of my course — but they are not the major focus of the course. Rather, I discuss recent research papers throughout the course, looking at different aspects of the field in dealing with different animal groups. In this way, students see what can be done once a set of basic concepts and terms are mastered; we put this information to good use as it is acquired.

For example, I spend two lectures toward the end of my course talking about aspects of substrate selection and metamorphosis, using as examples experiments on cypriods, veligers, cercariae and trochophores. Earlier in the semester I highlight these larval forms as we deal with the relevant phyla, so that by the time we get to these lectures on metamorphosis, students recognize the terms with little prompting.

On the other hand, I don’t ever specifically mention (or expect the students to learn) the names of larval forms that I don’t eventually plan to talk about during the semester. Some of what I emphasize in lecture changes each year, as I replace some research papers with others from one year to the next. The terminology and associated information that is relevant to any particular course will vary with the goal of that course.

I’ve read that students forget about 80% of all factual information within a few months of completing ANY course. So why have students learn the names of particular larval stages or body parts or other specialized terminology unless you do something meaningful with that information during the course? Long after my students have forgotten the names and spellings of all seven classes of mollusc, or the names of the larval stages in the trematode life cycle, or even what veligers are (yes, they forget even that), they will still have a sense of why people study vertebrates, why certain questions are asked of certain groups of animals, how studies are designed in different areas of invertebrate zoology, how to interpret and present data, and how to ask new questions.

Students seem to buy into the course philosophy with little difficulty; no students have asked me “Why do we have to learn this?” for at least a dozen years! One drawback to my approach is that I must plan my course ahead of time in considerable detail. In practice I spend as much time deciding what to leave out of the course as I spend deciding what to put in. But the approach seems to be successful.

I wouldn’t claim that mine is the only way to teach invertebrate zoology or that it’s even the best way. There is likely to be no one best way to teach a subject as large and as diverse as this one, and the “best” approach to use will surely vary by instructor and with the background of students taking the course.

It would be splendid to see the next “Teacher’s Corner” filled with suggestions from others about different approaches that seem to work in teaching invertebrate zoology. But I am convinced that it is important to have a well thought out goal in teaching invertebrate zoology, to design the course carefully around that goal, to make that goal clear to students early in the semester and to keep that goal in mind in establishing expectations for student performance.

Dear Libbie: Innovation in Teaching

Letters to the Editor

In our invertebrate laboratories, we introduce computer-assisted illustrating. This provides training in traditional biological illustration skills, but also develops fluency in computer graphics, a useful skill for employment and graduate work. We use Canvas®, which is reasonably priced, runs on both Mac and Windows platforms and can be learned in about an hour. A nice feature is the ability to import digitized video images from either microscope-mounted cameras or camcorders set to macro-range focus.

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Dear Libbie

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which can then be used in a "camera lucida" trace-over mode. Drawings are printed on a laser printer, and we hold two contests each semester for best illustrations. Students rate this part of the lab as one of the most valuable, and we reinforce the skills by requiring computer illustrations for senior-level courses as well.

The Ocellus Project CD-ROM, with examples of student work, descriptions of use of multimedia techniques for students and faculty, software templates, and faculty-developed multimedia prototypes is available free (SASE 6" x 8", 64 cents postage) to biology instructors (Sorry, Mac only, requires HyperCard 2.2). In related news, I will be releasing version 3.0 of Metazoa (a CD-ROM exploration of invertebrate biology) in January, and this version should run on both Mac and Windows '95 platforms.

—Kerry B. Clark, Biological Sciences, Florida Tech, Melbourne, FL 32901-6988. 407/725-5130; Email: kclark@winnie.fit.edu.

Editor's note: See the very positive review of Metazoa version 2.0 in the June issue of Q.Rev.Biol, page 270. One of the few shortcomings mentioned by the reviewer, that "vertebrates are not covered at all in the current version," will perhaps not be seen as a major handicap by DIZ members. Version 3.0 may have added this material, making the software more appropriate for biodiversity courses.

Message From the Secretary

Donna Wolcott

At the ASZ general meeting in December in Washington, D.C., the membership will vote on moving ASZ general elections from the fall to the spring. Newly elected officers would know of their election with enough lead time for a smooth transition to office at the next ASZ meeting.

Along with other ASZ Divisional Secretaries, I applaud this proposal; however, it would necessitate changes in DIZ bylaws, detailed below. Along with the change in election date are proposals to extend the term of the DIZ Chair from two to three years, and to authorize either the Chair-elect or the Past Chair to sign off on proposals to funding agencies from the Division. (Without this latter change, we could only legally apply for funding one out of three years!)

The issue of accommodating nominations from the general membership when the slate of nominations and the ballots arrive in the same mailing has never been addressed and should be discussed. Amending the by-laws requires that the proposed changes be distributed to the membership at least 60 days before being voted on and be approved by 2/3 of those attending the annual business meeting. Please come to the annual meeting in Washington prepared to vote on the changes detailed herein.

Meanwhile, under the current by-laws, we are conducting a fall election for DIZ chair. If the by-law changes are approved, I am hopeful that this Chair will serve the new three-year term, in order to keep the staggered rotation of program officer, secretary and chair. The newly elected chair would serve as Chair-Elect during 1996 and assume duties of the Chair at that year's annual meeting. After a three-year stint as Chair, there would follow a two-year term as Past Chair.

Proposed Changes to DIZ Bylaws

Changes are in brackets [], deletions are crossed out.

Article V. Officers

The Officers of the Division shall be: Chair, Past-Chair, Chair-Elect, Secretary and Program Officer. The Chair-Elect shall be elected [triennially] biennially and shall then automatically become Chair for [three] two years following his/her year as

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Proposed Changes to DIZ Bylaws

From previous page

Chair-Elect. He/She shall serve as Past-Chair during the succeeding two years. The Secretary and the Program Officer shall be elected triennially and shall hold office for three years. The expiration date of the terms of the Chair, Secretary and the Program Officer shall be arranged so that only one of them need be elected in any one year. The officers shall assume their duties at the next annual meeting beginning of the next calendar year following their election.

The above officers, together with the retiring Secretary and retiring Program Officer (if any) shall constitute an Executive Committee and be responsible for the affairs of the Division.

Article VII. Chair-Elect (and Past-Chair)
The Chair-Elect (or Past-Chair) shall assume the duties of the Chair whenever the latter cannot perform them. He/She shall sign all proposals to federal granting agencies on behalf of the Division of Invertebrate Zoology.

Article X. Nominating Committee
The Chair shall appoint a Nominating Committee, consisting of three members who shall submit to the Secretary on [March] June 1 a list containing not less than two candidates for each office to be filled. The Nominating Committee must certify to the Secretary that each candidate has declared a willingness to run for office and serve, if elected. The candidates shall be announced in the next Newsletter of the Division. Additional nominations for any office may be made in writing to the Secretary by any ten members of the Division not later than [April] September 1.

Article XI. Elections
Elections of officers shall be held by mail. The Secretary shall mail ballots to the membership of the division in [May] October. A brief biographical sketch for each candidate shall accompany the ballots. The Secretary or ASZ Executive Director shall count, tabulate, record the votes received by [August] December 1, and notify the candidates for office of the results of the election. In the event that a vote results in a tie, the members of the Executive Committee shall vote by mail to resolve the tie.

Message From the Program Officer

Jon Norenburg

The Washington, D.C., meeting in 1995 begins the Smithsonian Institution’s 150th Anniversary celebration. We expect that there will be some special events associated with this fact — if they involve food, I know you will all be there, even if I can’t tell you about them now.

Non-vertebrates continue to be well-represented in contributed-paper sessions and intimate details of their families and lives will be featured in several symposia:

Systematics and Biogeography of Marine Biodiversity, organized by Lynne Parenti and Jon Norenburg. New Frontiers in Barnacle Biology, organized by Fred Schram and Jens Hoeg.

Aquatic Locomotion: New Approaches to Invertebrate and Vertebrate Biomechanics, organized by George Lauder and John Long.

Molecules to Mudflats: Biological Adaptations in Estuarines (Applications to the Chesapeake Bay), organized by Peter deFur and Louis Burnett.

Refrain (ri-fran’), n. [ME. refrenne; OFr. refrain < refraindre, to restrain, modulate << LL. *refrangere, for L. refringere, to break off < re-,back + frangere, to break], 1. a phrase or verse repeated at intervals in a song or a poem, as in: There is little time left to be planning workshops and symposia for the next ASZ meeting (’96 Albuquerque) — See next page
Message from the Program Officer

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April is the deadline for submitting proposals to the ASZ. Now is also a good time to be thinking even farther ahead, especially if you plan to seek NSF funding. Please contact me by e-mail if you need forms or wish to discuss an idea. If you are interested in biomechanics, see Mark Westneat's report in the DVM section concerning a proposed symposium at Albuquerque in honor of the contributions of Steve Wainwright to biology, to biomechanics, to ASZ, to fun...

USAP (Hmm, great license plate!) — The Department of Invertebrate Zoology at the National Museum of Natural History has been named an NSF Center of Excellence in Antarctic Research and now is home to marine invertebrates of NSF’s United States Antarctic Program. This represents over 25 years of research and collecting in the Antarctic (The collection includes a significant quantity of Arctic marine invertebrates as well). This material is available for research; many groups are still in need of basic taxonomic study. At this time, the USAP group expects to be available, either in the exhibits area or during a poster session, with its computerized database to answer questions and encourage research with this collection.

AAZN — Be on the lookout for information about the American Association for Zoological Nomenclature. The International Code of Zoological Nomenclature is being revised! Got a beef? Now is the time to be heard and the AAZN will see to it that you are. To be in on the action and get your own copy of the Discussion Draft of the Code, write and send $3 to: Treasurer, AAZN, c/o National Museum of Natural History, MRC-168, Smithsonian Institution, Washington, D.C. 20560.

Libbie H. Hyman Memorial Summer Field Station Scholarship
Congratulations to the recipient of the 1995 Libbie H. Hyman Award, Rebecca Adkins of East Tennessee State University. This grant-in-aid assists beginning graduate students or advanced undergraduates during their first experience at a marine, freshwater or terrestrial field station. Ms. Adkins used the grant for an independent study project on meiofauna at Harbor Branch Oceanographic Institution in Ft. Pierce, Florida.

Encourage your students to apply for the 1996 award. Applicants must provide a completed application form, up-to-date transcripts, and letters from two faculty members familiar with the applicant’s abilities. Application forms are available from Dr. Claudia Mills, 620 University Road, Friday Harbor, WA 98250, e-mail: cmills@fhl.washington.edu. Completed applications are due MARCH 1.

Great Invertebrate Biologists:
Abraham Trembley (1710-1784)
Father of Experimental Invertebrate Zoology
by Howard M. Lenhoff and Sylvia G. Lenhoff
Department of Developmental and Cell Biology
University of California at Irvine, 92717

In this series on great invertebrate zoologists, none of the biographies has dealt with biologists of the 18th century. This is not unusual. In the Age of Enlightenment there was not the focus on biological research that appeared in the 19th and early 20th centuries when natural history, embryology, evolution and genetics dominated research and theory. Nonetheless, four figures were especially prominent in the emerging biology of the 18th century. They were René Antoine Ferchault de Réaumur, Abraham Trembley, Charles Bonnet, and Lazzaro Spallanzani. Of this quartet, we consider Trembley, called by some the “father of experimental zoology,” with his revolutionary findings on regeneration and experimental philosophy of research, worthy of re-examination.

Who was Abraham Trembley and what led him to study hydras, or as he called them, “polyps of fresh water with

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Great Invertebrate Zoologists: Abraham Trembley

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arms shaped like horns”? He was a member of a prominent Genevan family. Born in 1710, he grew up in a period when manyintellectuals in his native city had turned their attention to natural history. His own academic interest initially centered on mathematics rather than on animals, and as a university student he prepared a thesis on the calculus.

After completing his education, the young man sought work in Holland. It was there, as a tutor at the estate near The Hague of Count William Bentinck, that Trembley made the observations and did the experiments that were to revolutionize the study of living organisms. Amazingly, he made scores of findings in the short span between 1740 to 1744. Moreover, he did it long before the development of sophisticated tools, relying mainly on a magnifying glass and occasionally on a simple single-lens microscope.

Trembley first became intrigued by hydras in the course of observing aquatic plants and animals collected in his spare time from ditches on the count’s estate. He described his glass jars “populated with little creatures” as “good company with which to relax from more serious occupations.” One day in June of 1740 he saw the hydras contract and extend. Astonished, he watched for other evidence of animal behavior until, after observing them for several days, he saw his subjects take steps.

Satisfied that the tiny creatures were animals, Trembley paid them little heed for the next month or so. Then by chance he noted that they had a propensity for light. At a time when many naturalists did little more than describe the organisms they observed, he decided to explore his observation further by experiment. He proceeded to demonstrate for the first time that eyeless animals can exhibit phototaxis. In one study, for example, he covered a jar of polyps with a cardboard sleeve in which he had cut a small opening. He then rotated the sleeve at intervals and tracked the migration of the specimens toward the light coming in through the opening.

The tutor’s interests were now irretrievably focused on hydras, and he decided to investigate them seriously and thoroughly. One of his first accomplishments was proving that a whole organism can regenerate from a small piece cut from an animal. He began to study this phenomenon after he noticed that hydras varied in their number of tentacles, or “arms,” a decidedly odd characteristic for an animal. The oddity made him think of bisecting a specimen to see whether the halves would develop into complete organisms. If they did, the finding would suggest the polyps were plants. It turns out that Trembley soon found definite evidence that hydras were animals: he saw a brown species seize and eat prey. Fortunately, however, he did not make this observation until after he had conclusively shown that hydras could regrow missing parts. As Trembley said, if he had seen his subjects eat earlier, he might never have decided to bisect them.

The discovery of regeneration in animals was one of the first major challenges to the accepted “natural law” that mating was required for animals to reproduce. Trembley’s finding was arguably even more dramatic than that of his cousin Charles Bonnet, who in the course of studying aphids the year before had discovered parthenogenesis. At about the time Trembley did the work on regeneration he also observed a “polyp that was beginning to produce a little one” in a manner that was “very closely akin to the way plants multiply when they give off shoots.” He became excited as he watched a small protrusion from the body of a polyp grow, develop tentacles and detach to become a small replica of its “parent.” Experiments be then devised helped to elucidate the nature of asexual reproduction by budding, proving for example that the buds did not develop from eggs.

Trembley’s other extraordinary discovery, grafting, was the culmination of a circuitous chain of events (Lenhoff and Lenhoff, 1984). It was a complication of turning hydras inside out that led Trembley to observe his first graft. In one instance he saw that the tip of an immature bud that was now inside the inverted parent had poked through a hole that had been cut in the skin of the mother; the bud seemed to be completely united to the mother at the new site. The discovery prompted him to do an orderly set of experiments proving conclusively that pieces of two different hydras from the same species could be grafted together and that grafts between hydras of different species would be rejected.

The discoveries we have described were probably Trembley’s most important achievements, but they were by no means his only ones. When feeding hydras deeply pigmented foods, he noticed that the hydra tissues retained

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Great Invertebrate Zoologists: Abraham Trembley

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the colors. He then used the newly pigmented hydra tissues to study processes, and in so doing invented the first “vital staining” technique (Baker, 1952). Baker also cites Trembley as the first to describe protoplasm, an accomplishment credited to Felix Dujardin, who worked a century later. While analyzing granules oozing out of a cut hydra, Trembley noted that they were held together by a “viscous material” in which “must be contained all the components that serve to carry out their movements of contracting, flexing, and so forth.” He and his contemporaries, however, did not realize that the material might be the basic substance of all living tissue.

The astute investigator uncovered secrets of other invertebrates as well. He described for the first time the process of budding in the worm Stylaria and in the bryozoan Lophopus, a colonial invertebrate; he wrote about the anatomy of Lophopus in amazingly accurate and fine detail, and it was he who pointed out that bryozoans are animals.

Few people are aware that Trembley also observed cell division. Although the idea of a cell had not yet been conceptualized, he both described and sketched the multiplication of the single-cell alga Synedra, and he was the first to show that protozoa reproduce by division. His biographer Baker further credits the Swiss tutor with a number of discoveries on other animals, including colony formation and tube building in rotifers.

Abraham Trembley’s findings may be accepted as fact today, but early reports of his discoveries created a furor not only in the universities and scientific societies but also in the fashionable salons of the times. The initial reaction was disbelief, and religious questions were raised, among them: If cut pieces of a polyp could regenerate a whole organism, what then became of the animal’s soul?

For many intellectuals negativity soon gave way to enthusiasm for the clues to nature that Trembley had uncovered. For instance, Réaumur, with whom Trembley corresponded for 17 years, reacted with mounting excitement as he verified Trembley’s results. Indeed, Réaumur was so impressed that he encouraged his young friend to collect and publish the discoveries on hydrids, a task Trembley accomplished with his beautifully illustrated book, “Mémoires, pour servir à l’histoire d’un genre de polypes d’eau douce, à bras en forme de cornes” (Memoirs concerning the natural history of a type of freshwater polyp with arms shaped like horns) (1744).

Réaumur also introduced Trembley’s discoveries to the intellectual circles of Paris, the king of France and his court, and the French Royal Academy of Sciences, which later offered Trembley the honor of becoming one of its Correspondents. In England Trembley was elected to the Royal Society of London in 1743 and was awarded its prestigious Copley Medal, considered then to be one of the highest accolades in science.

More profound than Trembley’s popular acclaim was his immediate influence on serious students of natural history. Trembley’s work — together with that of Réaumur, Bonnet and others — validated the importance of basing the study of living organisms on direct, careful observation rather than on preconceived ideas and theory. Trembley believed it was only by observation and experiment that he had been able to reveal phenomena, such as regeneration, that should have been discovered long before. “Nature must be explained by Nature,” he insisted, “and not by our own views.”

Trembley’s successes convinced many students of natural history to also make the important transition from observing to active experimenting. More specifically, his work encouraged others to devise studies that significantly advanced the understanding both of freshwater and marine invertebrates. His experiments, for example, spurred Bonnet’s and Spallanzani’s studies on regeneration. As a result, within 25 years after Trembley first cut a polyp in two, the phenomenon of regeneration was widely recognized as a basic natural process. Some scholars believe the spreading influence of Trembley’s work on hydras stimulated the development in 1752 of a precursor to today’s dissecting microscope.

The discoveries made by Trembley are now part of every biologist’s fundamental knowledge. Why then is the man generally accorded little recognition? One reason may be that he did not propose any theory to which his name can be linked. Trembley’s hostility to theory has made it difficult for historians to fit him into any philosophic or historic niche. Even in his own time Trembley’s scientific prominence faded. He made few systematic contributions to

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Great Invertebrate Zoologists: Abraham Trembley

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science between the time he completed service with the Bentincks in 1747 and his death in Geneva in 1784.

Trembley’s prominence in the collective memory of scientists may have faded, but a review of his “Mémoires” provides a quick reminder that he still has much to teach the modern scientist. Today’s biologists dipping into the book can gain insight into virtually every aspect of the biology of the hydra, including its structure, behavior, physiology, development, and interaction with prey and predators. Moreover, many of the phenomena described in the book invite further study by contemporary developmental biologists.

Which of Trembley’s qualities as a scientist might the aspiring biologist emulate? In addition to being an empiricist who insisted on postponing the development of theory until he had sufficient data, he was an observer quick to see the unusual and to report his findings with great accuracy and detail. He was an experimentalist who was not content until he could prove his findings in a number of ways. He was quantitative in his approach, backing up many of his experiments with numbers and repeating the experiments until he was convinced of their validity. He was an organismic biologist interested not in a single problem but in all aspects of an animal, and he was an operationalist who believed an experiment has no lasting value unless the methodology is described in a way that enables others to replicate it. It is not enough to say, he wrote, “that one has seen such and such a thing. This amounts to saying nothing unless at the same time the observer indicates how it was seen, and unless he puts his readers in a position to evaluate the manner in which the reported facts were observed.”

Trembley had other noteworthy qualities as well. He worked not only in his study but also in the field, where he was able to discover a number of new species, and he investigated both the structure of organisms and the mechanisms behind the functions he observed. He was a technician par excellence, carrying out complex and delicate operations with hardly more than scissors and a boar’s-hair probe as tools.

What would Abraham Trembley think about contemporary biology if he were alive today? We suspect that this organismic biologist, who was “swept along, as it were, from one observation to another” to discover phototaxis, whole-animal regeneration, budding and grafting, might be somewhat ambivalent. He would probably marvel at the success of such fields as neurobiology and molecular biology, where organisms are exploited to answer specific fundamental questions. Yet he would undoubtedly be disturbed to discover that individual biologists increasingly study ever fewer phenomena. Nature is too vast, he might well insist, for us to neglect broad and detailed studies of the host of organisms that populate the planet. He might say: “Let the organism speak.”

BIBLIOGRAPHY


Summer Courses

Duke University School of the Environment Marine Laboratory

SUMMER TERM I. (May 13 - June 14, 1996)
Marine Biology, 4 cr. Kenney; Biological Oceanography, 6 cr. Barber; Physiology of Marine Animals, 6 cr. Forward; Biochemistry of Marine Animals, 4 cr. Staff; Marine Invertebrate Zoology, 6 cr. Kirby-Smith. Cellular and Molecular Research Techniques, 4 cr. Brouwer; Independent Study, variable. Staff.

SUMMER TERM II. (June 17 - July 19, 1996)
Marine Biology, 4 cr. Kenney; Behavioral Ecology, 6 cr. Rubenstein; Marine Ecology, 6 cr. Staff; Barrier Island Ecology, 6 cr. Evans, Peterson, & Wells; Biology of Marine Invertebrates, 6 cr. Dimock; Independent Study, variable. Staff.

SUMMER TERM III. (July 22 - August 23, 1996)
Marine Mammals, 4 cr. Staff. Independent Study, variable. Staff.

For information and applications contact the Admissions Office, Duke Marine Lab, 135 Duke Marine Lab Road, Beaufort NC 28516-9721 (ph 919/504-7502; fax 919/504-7648; e-mail lmeaning@mail.duke.edu)

Shoals Marine Laboratory (SML)
Undergraduates and graduate students interested in taking courses in the marine sciences on Appledore Island, Gulf of Maine next summer, should contact SML by writing SML, G-14 Stimson Hall, Cornell University, Ithaca, NY 14853, calling 607/255-3717, or sending an e-mail to Shoals-Lab@cornell.edu. Scholarships and work/study packages are available to eligible applicants.
Election of Officers

Candidates for Chair-Elect, Division of Invertebrate Zoology, 1996

Daphne G. Fautin

Daphne G. Fautin, Professor, Systematics and Ecology, University of Kansas, and Curator, KU Museum of Natural History. Degrees: B.S. Beloit College (Wisconsin), Ph.D. University of California, Berkeley.


Of all ASZ members, those of us in the Division of Invertebrate Zoology may have the greatest stake in the survival and prosperity of ASZ, which is unique as a meeting point for concerns about all aspects of the diverse organisms known as invertebrates. Invertebrates may never have had more visibility in biology. Interest in invertebrates as sources of novel compounds of potential biomedical significance, as models for understanding physiology and genetics, and as critically important elements of most ecosystems, for example, has led to concern for their survival and to research on their conservation. We can further this attention, and our knowledge of invertebrates, by bringing new people and their ideas to the Society and Division, by sponsoring symposia that highlight important issues in invertebrate zoology, and by supporting our new journal, Invertebrate Biology.

William M. Kier


Research Interests: Comparative biomechanics, in particular the functional morphology of musculoskeletal systems: muscle structure, function, development and evolution; molluscs, in particular cephalopod biology. Other society memberships: AAAS, American Malacological Union, American Microscopical Society, North Carolina Society for Electron Microscopy and Microbeam Analysis, Sigma Xi.

The possibility of the collapse of the ASZ during the recent financial crisis brought into focus the crucial role that ASZ plays for many of us, in particular with respect to the training of our graduate students. There are simply no other alternatives that provide the opportunity for interaction with such a wide diversity of specialties that nonetheless share common interests. I have been struck by how frequently the interactions for me and for my students cross the divisional boundaries of ASZ. Indeed, this has sometimes caused problems for me in terms of concurrent sessions in DIZ, DCPB, DVM and DE. Since the diversity of interests represented by the membership of ASZ is clearly a unique strength of the Society, we should work to take advantage of this strength by greater integration of the various divisions. At the simplest level, this might involve more coordination in programming so that, for instance, a DIZ session that includes primarily biomechanical papers is not simultaneous with a DVM session on biomechanics. Additional coordination in terms of cosponsored symposia, educational and lobbying efforts would help to make ASZ truly a society of integrative and comparative biology.
Message From the Chair

Lynne R. Parenti

Congratulations to the new officers of the Division of Systematic Zoology (DSZ). Our chair-elect is Dr. Carole Hickman, an invertebrate paleontologist in the Department of Integrative Biology, University of California, Berkeley. Our secretary-elect is Dr. Dominique Didier, an ichthyologist at the Academy of Natural Sciences, Philadelphia. Our new program officer, Dr. Jacqueline Webb, also an ichthyologist, is from the Department of Biology, Villanova University.

DSZ is unusual in that, since our split with the Society of Systematic Zoologists (now Biologists), our officers are not necessarily primary members of the division and, therefore, we depend on the continued interest and support of other divisions. We look forward to a (hopefully) well-attended DSZ Business meeting in Washington to continue discussion of the unique role of the division within the Society, and to plan future symposia that we may co-sponsor with other ASZ divisions.

Co-sponsoring symposia is one of the best ways we may underscore the unifying theme of systematics in comparative and integrative biology. Jackie is anxious to start planning for 1996 and beyond, and welcomes any and all suggestions for symposia, workshop, or other jointly-sponsored activities. Contact Dr. Jacqueline F. Webb, Department of Biology, Villanova University, Villanova, PA 19085; phone 610/519-4807, E-Mail jwebb@ucis.vill.edu, to discuss upcoming programs.

Program and publications plans for our Washington, D.C. symposium entitled "Phylogenetic Systematics, Biogeography and Marine Biodiversity," are nearly complete. The symposium is being co-sponsored with the Division of Invertebrate Zoology, and is also receiving support from the Division of Comparative Physiology and Biochemistry and the Division of Ecology, for which we are most grateful. Symposium proceedings will be published as a separate number of Cladistics, the journal of the Willi Hennig Society.

Despite ominous federal budget-cut predictions, or perhaps simply as displacement, zoologists in Washington, D.C., are busy planning activities for this December that we hope all ASZ meeting attendees will enjoy. We have asked that Sinauer, publishers of the new version of Phylogenetic Analysis Using Parimony (PAUP), and MacClade, send representatives to staff a book vendor display. My Smithsonian colleague, Dr. David Swoford, author of PAUP, has also agreed, schedule permitting, to attend the meetings, and spend an afternoon or so demonstrating and answering questions about the new version of his program. Systematic biologists who wish to visit and use the collections at the National Museum of Natural History during the meetings should contact appropriate curatorial and collection management staff as soon as possible to coordinate holiday schedules. Looking forward to seeing you all in Washington!
Computer Programs for Phylogenetic Studies

In the Spring 1995 Newsletter, we began a section on computer programs that might be of interest to the membership of ASZ, especially those members engaged in systematics and phylogenetics. The following list includes additional information about some of the computer programs mentioned previously and some new ones that were not included in the previous newsletter. Much of the following information was borrowed from the end of the release notes that came with the program PHYLIP v. 3.5c by Joseph Felsenstein. If you have additional information on these or other programs, especially from personal experience, please send it to the division secretary for future issues of the Newsletter.

1. Hennig86. J.S. Farris, 1988. Distributed by Arnold Kluge, Amphibians and Reptiles, Museum of Zoology, University of Michigan, Ann Arbor, Michigan 48109-1079. This is a parsimony program including branch-and-bound searches for most parsimonious trees and interactive tree rearrangement. It runs on PC-compatible microcomputers with at least 512K RAM and needs neither a math coprocessor or a graphics monitor. It can handle up to 180 taxa and 999 characters.

2. CLADOS, Version 1.2. This interactive program allows rearrangement of trees, evaluation of trees, and mapping of characters into trees. Runs on PC/DOS systems and is available from Kevin Nixon, L.H. Bailey Hortorium, Cornell University, 467 Mann Library, Ithaca, N.Y. 14853.

3. TreeAlign. John Hein, Institute of Genetics and Ecology, University of Aarhus, 8000 Aarhus C, Denmark. This multiple sequence alignment program builds trees as it aligns DNA or protein sequences using a combination of distance matrix and parsimony methods. TreeAlign is memory intensive and designed for use on a workstation or mainframe. It is available by anonymous ftp at the Indiana (ftp.bio.indiana.edu), Houston (ftp.bchs.uh.edu), and EMBL (ftp.embl-heidelberg.de) molecular biology software distribution sites.
Message From the Chair

Sharon Emerson

I am looking forward to an exciting meeting in Washington, D.C., and the symposium on "New Approaches in Aquatic Locomotion" organized by John Long and George Lauder. In anticipation of getting together at the annual meeting, I want to stress the importance of feedback to students and colleagues regarding oral and poster presentations. The Division of Vertebrate Morphology has a long history of providing a supportive atmosphere for first time presenters, but I think we often forget that all of us appreciate constructive comments on our work. And, even if you aren't officially judging student papers, students want and need to hear from you about what they have done. A few words of support and encouragement are always welcome.

As you think ahead to possible future symposia, I hope the topics that come to mind reflect the growing integrated nature of research being done by morphologists. The boundaries among physiology, morphology and endocrinology are getting fuzzier and fuzzier, and I think it would be great to do more joint presentations with those other divisions.

As most of you are aware we had elections recently for a number of division offices. Frank Fish, the present secretary, will be ending his five-year term at the close of 1995. I want to take this opportunity to thank Frank for his outstanding service to the division. He has done a great job.

Right now, I can't think of any other matters that need to be discussed before we get together at the meetings. See you in Washington!
Election Results

The final tabulation of the ballots is now complete. John Hermanson (Cornell University) was elected as DVM Program Officer and Dominque Homberger (Louisiana State University) was elected as the DVM Secretary. The division is assured that both will do an excellent job in their new positions. Appreciation is expressed also to the other candidates, Bruce Jayne and John Long.

Message From the Program Officer

Mark Westneat

Programs for the meetings in Washington are looking good and I hope you will all attend. Since you are all preparing you abstracts as I write this, I will not give you more details to the schedule but I can tell you, "results will be discussed."

I can say that we are planning an excellent symposium. DVM is sponsoring a symposium called "Aquatic Locomotion: New Approaches to Invertebrate and Vertebrate Biomechanics", being organized by George Lauder and John Long. The symposium promises to consist of a broadly interdisciplinary group that will discuss the principles of lift, thrust, drag, acceleration, tension, and compression on animals ranging from microorganisms to flies to crabs to fishes to dolphins. Unfortunately, this symposium did not make it onto the list of symposia on the call for abstracts, so please publicize it to your students and colleagues.

In other programming news, Mimi Koehl, Bill Kier, and I would like to announce a symposium in the planning stages for the Albuquerque meetings in 1996. The plan is to propose to ASZ a series of contributed paper sessions (standard 20-minute format), co-sponsored by DVM and DIZ, in honor of the contributions of Steve Wainwright to biology, biomechanics, ASZ, and to the generally high levels of intellectual fun that he stirs up whenever he is around. We are hereby sending out the call to Steve’s students, collaborators, and others who feel that their minds have been twisted by Steve. Everyone should feel free to join in, because the unifying theme is SAW! Please contact any of the officers you are interested in coming to Albuquerque and honoring Steve, either by speaking at one of the sessions, coming to the party, reciting a rude limerick, or wearing a loud shirt. Mimi is gathering a list of people for contributed papers, and will submit a proposal to ASZ for approval. Contact Mimi at Department of Integrative Biology, University of California, Berkeley, CA 94720-3140; Tel. 510/642/8103.
Logo Update

Frank Fish

The DVM is looking for a new logo. If you have a logo for the division, please forward it to Frank Fish. Each logo will be presented at the ASZ meeting in Washington, D.C. at the DVM business meeting. At present, Alice Gibb has submitted two.

Announcements

Ann Pabst has taken a new position and can be reached at the Department of Biological Sciences, University of North Carolina at Wilmington, 601 South College Rd., Wilmington, NC 28403-3297; 910/256-3721; Fax.: 910/350-4066; e-mail. pabsta@uncwil.edu.

Publications Available


Brain, Behavior and Evolution is being offered at a special discount to DVM members (discounted 58 percent for faculty and almost 80 percent for students and postdocs).

Position Available

Tenure track assistant professor position available August 1996 for Zoologist. Ph.D. or equivalent required. Teaching may include general zoology, human anatomy and physiology, comparative anatomy, and upper division course in candidate’s specialty. Area of research interest is open. If you are interested, mail one copy of all university transcripts, curriculum vitae, and three letters of recommendation, all postmarked by December 2, 1995, to: Dr. Judith Greenamyer, Biology Department, West Chester University, West Chester PA 19383. For detailed job description call 610/436-1023 or e-mail jgreenamyer@wcupa.edu

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