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Inside

Revised *Guide for the Care and Use of Laboratory Animals* Available

Kathryn Bayne
Associate Director, American Association for the Accreditation of Laboratory Animal Care and Member, ILAR Committee to Revise the Guide

A new version of the *Guide for the Care and Use of Laboratory Animals* has been completed 11 years after the previous edition was published. The *Guide* is an important tool for researchers around the world because it provides an important compilation of information and references on animal care and experimentation. An overview of the changes appearing in the seventh edition of the *Guide* was presented at the "Animal Welfare Update" symposium sponsored by the APS Animal Care and Experimentation Committee at Experimental Biology '96.

The new *Guide* features a consolidation and reorganization of the material presented. There are certain changes, such as new discussions about nontraditional species and field investigations, an end to dual standards for biomedical and agricultural research, and a few changes to recommended cage sizes. The new *Guide* also provides expanded and updated guidance on the role of the Institutional Animal Care and Use Committee (IACUC).

The 1996 version of *Guide* is being published by the National Academy Press based on the recommendations of a committee selected by the Institute for Laboratory Animal Resources (ILAR), which is a component of the National Research Council of the National Academy of Sciences. The 15-member Committee, chaired by J. Derrell Clark, included veterinarians, researchers, and ethicists. A nonscientist was also appointed to serve as a community member of the Committee.

The sponsors of this latest edition of the *Guide* include the Office for Protection From Research Risks (OPRR) and the National Center for Research Resources (NCRR) of the NIH, the Interagency Research Animal Committee (IRAC), and the Departments of Agriculture (USDA) and Veterans Affairs (VA). Because of its multi-agency sponsorship, the newest edition will simply be known as the *Guide for the Care and Use of Laboratory Animals*. The sponsors asked the Committee to receive public input, be consistent with scientific knowledge, provide references to published materials, and maintain consistency with the style and content of the previous edition. This article summarizes some of the main changes in the *Guide*.

Performance Goals vs. Engineering Standards

The opening paragraph of the Introduction to the *Guide* sets the tone for the entire document: "This edition of the *Guide for the Care and Use of Laboratory Animals* (the *Guide*) strongly

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Response to Jim Schafer's "State of the Society..."

I read with interest APS President Jim Schafer's thorough treatise on The American Physiological Society and physiology in general [*Physiologist* 39(2): 41, 45-55, 1996]. His broad-based examination of our favorite subject resonated two chords with me: *1)* what physiology needs, and *2)* what physiology *is* and should remain.

What Physiology Needs

As a professor who teaches undergraduate students, I remember my own undergraduate career and the critical time when I had to decide what I was going to do with my life. At that stage, I was not overly impressed with the latest discovery in big-name research universities by big-time researchers (who rarely, if ever, darkened the door of the teaching classroom or laboratory, back in the 1960s). I wanted to see what biology, chemistry, physics, or math held for me personally as I wrestled with course selection, an academic major, postgraduate possibilities, and a life in science. What challenged me then is what challenges students today—an animated teacher who obviously loves the subject, communicates that affection, and effectively draws the students to it.

So, what physiology needs today is more good teachers of the subject who get excited about the mechanisms in physiology and the interrelatedness of the systems; who are not afraid to be actors in the lecture hall and show excitement and animation when explaining how actin and myosin interact; and who know the subject so well they do not have to read notes, but, rather, can live and breathe the subject compellingly, convincingly—entertainingly, even. This is not done to the extent of burying the science involved but instead to enhance the understanding of the science by capturing the students' attention and calling them to share in the adventure that is physiology. The discovery aspect of physiology—research, finding out new things about how a system operates—can be effectively intertwined with the learning of basic principles by a professor who uses discovery to whet the appetites of students "hooked" on physiology by the experience in the classroom.

What Physiology Is

The integrative nature of physiology is its very essence, a fact that was recently emphasized by Stanley Schultz in the Claude Bernard Distinguished Lecture at Experimental Biology '96, as well as by Schafer in his article. The reductionist approach in scientific training and biomedicine is producing great discoveries and progress but cannot come at the expense of contextualization. It is the physiologist with a broad understanding of feedback, homeostatic control, and organ system functioning who can provide context and meaning for "molecular motors" and membrane channel modulators, explaining their ultimate effects on the health and well-being of the animal or person in whom they reside. I add my voice to the many others who call for balance in the training of future physiologists. Their training in molecules should continue; their training in operation of organ systems and their interplay should be restored. Otherwise, soon we will replace the integrative physiologist with the "molecular motorman." He/she will know a lot about little, little things but very little about big, big ones. He/she will be able to construct a molecular map but not know where it ultimately leads. He/she will understand in minute detail the molecules making up the "leaves" of the animal "forest" but will not perceive the "forest" itself or how it functions as a whole. That means future generations of physiologists will have teachers who will teach them about "leaf" molecules but deprive them of knowledge about animal "roots," "trunks," "branches," and relationships with other animal "trees." As Winston Churchill once remarked, "That is a situation up with which we should not put."

In the Teaching Section of the American Physiological Society, our primary members are professionals who are profoundly interested in communicating the science of physiology to students and to the public. We call upon all available means to do the job, including the newest technologies and approaches (like computer simulations, interactive CD-ROMs, problem-based learning, and active learning), as well as the tried and true (lecture, group discussion, and wet lab experiment). Regardless of the technique or hardware, we must communicate the fact that "physiology is awesome, baby" (in Vitalesque form), by living what we are preaching.

Physiology is a dynamic, changing science, with scads more to be learned. It can accommodate devotées interested in all levels of understanding (molecular to organismic) but should always provide systemic and organismic context in its foundational presentation so the detailed minutae of physiology can be properly understood. You, we, the teachers of physiology, must convey the love we have for physiology to our students in ways as dynamic as the subject is itself. Then, when you try something that really works well, write about it for *Advances in Physiology Education* or talk about it in an APS Teaching Section workshop. If you are interested in affiliating with the Teaching Section, write the new Chair, Robert G. Carroll, Department of Physiology, East Carolina University School of Medicine, Greenville, NC 27858-4353, or e-mail him at carroll@brody.med.ecu.edu.❖

David Stewart Bruce
Wheaton College
Chair, Teaching Section (1993-1996)

American Physiological Society
149th Business Meeting

Time: 5:15 PM, Tuesday, April 16, 1996
Place: Washington Convention Center, Washington, DC

I. Call to Order

The meeting was called to order at 5:18 PM by **President Leonard Jefferson**, who welcomed the members to the 149th Business Meeting of the American Physiological Society. Distributed with the agenda was the proposed Bylaw amendment and a list of the recipients of APS awards. President Jefferson selected **Ralph Lydic** as parliamentarian.

II. Election of Officers

It was with great pleasure that President Jefferson announced the results of the election of the officers that was conducted by mail ballot. The membership elected **Allen W. Cowley, Jr.**, Medical College of Wisconsin, President-Elect (April 18, 1996–April 10, 1997). The two newly elected Councillors are **Celia D. Sladek**, Finch University of Health Sciences/ Chicago Medical School, and **John A. Williams**, University of Michigan (April 18, 1996–April 21, 1999). They will assume office at the close of the Annual Meeting. They are replacing D. Neil Granger and Barbara A. Horwitz, who are completing three-year terms on Council.

III. State of the Society

Jefferson mentioned that each year the President of the Society has the opportunity to review the year and comment on the State of the Society at the annual Business Meeting. He acknowledged his appreciation "for the opportunity to serve the Society and to work with other officers, Council, and staff during the past year, all of whom are doing a great job for the Society." He noted that there is a tremendous amount of vitality in the Society and that during the past year there have been many changes and challenges.

The sections and section chairs continue to contribute to the health and vitality of the Society. Sections are actively involved in programming, being responsible for the outstanding symposia and Distinguished Lectures presented each year at the Experimental Biology meeting. Sections also participate in the governance of the Society through their service on the Nominating Committee, the Committee on Committees, and Section Advisory Committee, and through the annual joint meeting of section chairs with Council. Sections enhance communication within the Society through the distribution of newsletters. In addition, they play a vital role in getting young people involved in the Society by their efforts to involve students and postdoctoral fellows with the recipients of the Distinguished Lectureships. Jefferson specifically acknowledged the service of **Richard Traystman** who has served as Chair of the Section Advisory Committee during the past three years and has played an important role in section leadership by serving as an ex officio member of Council. Jefferson also acknowledged the service of **Linda Buckler**, the APS staff member who provides support for the sections.

Jefferson drew attention to the relatively new venture by the Society of establishing chapters. There are currently two official chapters: **Ohio Physiological Society**, which was granted status in April 1995, and **Iowa Physiological Society**, which became official in September 1995. The newly formed **Midwest Physiological Society**, spearheaded by Allen Cowley, Jr., may soon be applying for chapter status as well. These chapters provide a mechanism for enhancing


APS President Leonard S. Jefferson.

communication among physiologists within a relatively small geographical area by sharing research interests and involving students and postdoctoral fellows. The chapters will also become more of a force for public affairs by encouraging more people to contact their members of Congress in their home districts to help get the message across on important issues. Chapters will be important for science education as well by urging their members to get involved in K-12 schools and to help educate the public about the importance of science.

The various committees carry out the business of the Society, Jefferson mentioned. The Committee on Committees, chaired this past year by **Barbara Horwitz,** is composed of a representative from each section and is responsible for recommending people for committee service and ensuring a diverse representation on all APS committees. Jefferson encouraged anyone interested in serving the Society as a committee member to contact Horwitz.

The public affairs of the Society are well served by Past President **Brian Duling**, the APS representative to the FASEB Public Affairs Executive Committee; **Eric Feigl**, the APS Public Affairs Committee Chair and APS representative to the FASEB Public Affairs Advisory

Committee; **Terrance Hawk**, the APS Animal Care & Experimentation Committee Chair; and **Alice Hellerstein**, the APS Public Affairs Officer. Through their efforts, the Society played an especially active role in the arenas of animal use in research and biomedical research funding this past year. Jefferson announced that APS jointly sponsored two Maryland public television pilot episodes of *Health Week*, which provides the public with the latest news about medicine, research, and health by the nation's leading medical authorities. In addition, the Net Alert system, a rapid-response, e-mail network, was put into use to keep APS members informed of important issues. Jefferson thanked those who had participated this past year and encouraged everyone to become an advocate and to get involved in helping shape public opinion about science and biomedical research funding. Jefferson noted he had testified before the House Appropriations Committee and spoke against the proposed increase in Small Business Initiated Research Grants and earmarking and spoke in favor of reducing the burden of excessive regulations faced by scientists today. As a result of the activity of members, the NIH budget was increased by 5.7%. Jefferson mentioned that he had recently visited Capital Hill and Congressman Porter to thank him for his support of a 6.5% increase for the FY 1997 NIH budget.

Jefferson announced that the Society has a presence on the World Wide Web with the APS Home Page. The Home Page is continually being updated and new features being added. Recently a public affairs section was added and the entire April issue of *The Physiologist* was put up as a PDF file. Jefferson mentioned that he sees the initiation of an APS Home Page as an important development for the Society that can be used for continued improvement of communication with the membership.

The Program and Program Advisory Committees, chaired by **Ethan Nadel** with staff support by **Linda Buckler**, are continually evaluating the Society's meetings and taking steps to improve their quality. Two innovations for EB '96 are the Physiology InFocus Program, which was organized this year by Raymond Frizzell, and the "hot topics" symposia, which allow for a 6- vs. a 12-month lead time. In addition, the themes of the EB meeting continue to be revised yearly. Jefferson announced that for EB '97, the Physiology InFocus program will be organized by William Chin, the hot topic symposia deadline has been set for October 15, 1996, and changes have been made in symposia speaker reimbursement policy to allow both members and nonmembers to be reimbursed instead of just nonmembers.

APS Past Presidents. Back (l to r): Robert E. Forster II, John B. West, Brian R. Duling, Howard E. Morgan, Franklyn G. Knox, William H. Dantzler. Front (l to r): Shu Chien, Bodil M. Schmidt-Nielsen, Leonard S. Jefferson, Stanley G. Schultz, Vernon S. Bishop.

The APS is involved in planning for three international meetings in 1997, Jefferson noted: the joint Spanish Physiological Society (SECF)/APS meeting on February 4-7, 1997, in Malaga, Spain; the 33rd International Congress of Physiological Sciences (IUPS) meeting on June 30-July 5, 1997, in St. Petersburg, Russia; and the 19th Latin American Congress of Physiological Sciences on August 31-September 5, 1997, in Caracas, Venezuela. The Second Announcement for the IUPS meeting appears in the April and June issues of *The Physiologist*, and the Travel Award Application for that meeting will appear in the June and August issues of the newsletter. The Society plans on offering approximately 80 awards of around $800 each.

Jefferson reminded everyone that there are two conferences and an intersociety meeting scheduled for 1996: "pHysiology of Acid-Base Regulation: From Molecules to Humans" on July 12-15 in Snowmass, CO; "Neural Control of Breathing: Molecular to Organismal Perspectives" on July 21-25 in Madison, WI; and "Integrative Biology of Exercise" on October 16-19 in Vancouver, BC.

The Publications portion of the Society is headed by **Leonard Johnson** as Chair of the Publications Committee, with help from **Brenda Rauner**, Publications Manager and **Laurie Chambers**, Production Manager. In 1995 the Society received 6,920 new manuscripts and 3,572 manuscripts were published for a total of 30,411 pages. The ISI citation statistics continue to show that the journals are either the best or among the best in their fields during the period of 1983-95.

The Society continues to explore electronic publishing, Jefferson reported. The electronic journal *APStracts* contains all the abstracts of the accepted manuscripts for all the journals. In addi-

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tion, the Society is working toward placing the *Journal of Applied Physiology* online but there have been difficulties in getting the journal up because of changes within the vendor. A rescheduled start date of January 1997 has been targeted.

The Publications Committee has established a procedure for review of journals and editors prior to the appointment or reappointment of editors. Through this process and the payment of honoraria to the Editors and Associate Editors, the Committee has been effective in containing costs associated with those offices. Reappointments this past year have included **John Remmers** for the *Journal of Applied Physiology*, **Harris Granger** for *AJP: Heart and Circulatory Physiology*, and **Penny Hansen** for *AJP: Advances in Physiological Education*,. whereas new appointments include **John Hall** for *AJP: Regulatory, Integrative and Comparative Physiology* and **Kim Barrett** for *AJP: Cell Physiology*. New changes facing the Publications Department include the subsidizing of color figures starting in January 1997 and a name change for *AJP: Renal, Fluid and Electrolyte Physiology* to *AJP: Renal Physiology*.

Jefferson noted that education always has been an interest of the Society but that the program was greatly expanded as a result of the 1992 Strategic Plan retreat. The educational activities of the Society are overseen by **Frank Belloni**, the Chair of the Education Committee and **Marsha Matyas,** the Education Officer. The Education Department concentrates on three main areas, thanks in part to the ability of Matyas to secure NSF grants to aid in support of these programs: the "Frontiers in Physiology" program, which is responsible for the high school teachers summer research program; the "Female Role Models in Science" program, which develops classroom activities incorporating female role models; and minority programs in physiology, which has led to the continuation of the NIDDK and Porter Physiology Development program. In addition, the Education Department coordinates the activities of the Careers in Physiology, Liaison With Industry, Porter Physiology Development, and the Women in Physiology Committees. Activities that the department helped coordinate at EB'96 include the Gastrointestinal Refresher Course, the Careers Workshop, a symposia on Physiology in the Medical School Curriculum, and the Women in Physiology Mentoring Program.

Jefferson pointed out that the awards program of the Society was also affected by the 1992 Strategic Plan retreat. The Society now has an Awards Committee, chaired by **D. Neil Granger,** which is responsible for reviewing existing awards and looking for ways to develop new awards. The Awards Committee is directly responsible for selecting the Research Career Enhancement Awards and the APS-Genentech Postdoctoral Fellowship Award.

Jefferson noted that the financial stability of the Society is a result of the steady management of funds provided by the Finance Committee, served ably for many years by **Franklyn Knox** and now by the new Chair, **Edward Blaine,** and by **Jim Liakos,** the Business Manager. At the 1992 Strategic Planning meeting of Council, it was recommended that the APS utilize its reserves to benefit the membership and the discipline of physiology. Initially, the Society utilized interest income to create a Strategic Goals Fund. This year the Council accepted a Finance Committee recommendation to use 4% of the Managed Accounts to support society operations and programs. As a result, APS will be initiating a number of new programs and opportunities designed to enhance the personal growth and development of the APS membership. For 1995, total operating expenses were $10,369,264 or 10% under budget. Total operating income was $10, 735,163, for a total of $365,899 income over expenses. In 1995, cost centers were established within the budget so that it would be clear as to the cost of each program, enabling cost/benefit ratios to be calculated. This will help Council in future years decide whether the funds spent on individual programs help to meet the needs of the membership. Other recommendations of the Finance Committee that were approved by Council included increases in journal subscription prices, a $10 increase in page charges, and a $5 increase in dues.

In closing, Jefferson borrowed from James Schafer's article in the April issue of *The Physiologist* in which he points out that the near future for the Society will entail dealing with several challenges. One is the challenge of funding science in an era of decreasing support. Jefferson noted that for this year, at least, scientists were able to convince Congress that biomedical research is an important asset to the country. Another major challenge facing the Society is dealing with the shrinking job market, which has resulted in prolonged postdoctoral fellowship periods, leading departments across the country to try to determine new ways of training graduate students. A final challenge is for the members of

Passing of the Gavel from President Leonard Jefferson to President-Elect James Schafer.

APS Council (Front, l to r): Celia Sladek, Diana Kunze, James Schafer, Barbara Horwitz, Leonard Jefferson, Heinz Valtin, Walter Boron. (Back, l to r): D. Neil Granger, Gerald DiBona, John Williams, Edward Blaine, Francis Belloni, Martin Frank, Ethan Nadel.

the Society to continue to be advocates and educate their legislators and the public in general as to how important both science education and biomedical research are. Jefferson stated: "The Society is in absolutely wonderful shape with things changing for the better every day."

IV. Proposed Amendment to the Bylaws

In compliance with the Society Bylaws, the proposed amendment (Article IV. Section 2. *Finance Committee)* was published in *The Physiologist* 38(6): 279, 1995.

A motion was unanimously passed by the members approving the amendment to the Bylaws as follows:

ARTICLE IV. *Finance Committee.*
A Finance Committee, composed of ~~three~~ four regular members of the Society appointed by Council, shall receive the total coordinated budget proposals annually from the Executive Director and shall determine the annual budgets, reserve funds and investments of the Society, subject to approval by the Council. The term of each member of the Finance Committee shall be three years; a member may not serve more than two consecutive terms. The Council shall designate the Chairman of the Committee who shall be an ex officio member of the Council, without vote. On advice of the Finance Committee and consent of Council, the Executive Director shall be empowered to appoint and compensate a Business Manager who shall assist in carrying out the functions of the Finance Committee under the supervision of the Executive Director. The Past-President shall serve as a voting member of the Finance Committee. The President-Elect, President, Executive Director, the Chairman of the Publications Committee, and the Business Manager shall be ex officio members of the Finance Committee, without vote.

V. Report on Membership

A. Summary of the Membership Status

President-Elect **James Schafer** reported on the status of the Society membership. Since the last spring Business Meeting, the Society has accepted into membership 264 regular, 115 corresponding, 2 affiliate, and 181 student members. The current membership of the Society is 8,200 of which 5,646 are regular, 32 honorary, 968 emeritus, 693 corresponding, 12 affiliate, and 849 student members. He reported that during this meeting, 131 people were elected to regular membership and 63 people were elected to corresponding membership. In addition, at this meeting, three physiologists were elected to honorary membership: **François Morel**, Emeritus Professor, Laboratory of Cellular Physiology, College of France; **Denis Noble**, Oxford University; and **Jean-Didier Vincent**, Université de France and Faculty of Medicine, Paris.

B. Deaths Reported Since the Last Meeting

The names of those members whose deaths had been reported since the last meeting were read by Schafer, and the membership observed a moment of silence in tribute to their deceased colleagues.

VI. Affairs of the Society

Martin Frank, Executive Director, thanked Leonard Jefferson for working with him this year and for all that was accomplished for the Society.

Frank reiterated that the APS Home Page is there for the membership to use. He mentioned that the pamphlet "How To Be Heard on the Hill" is now included in the public affairs section as are links to other public affairs sites on the World Wide Web. As the Society is striving to make the Home Page a link to programs and departments, he urged the membership to send in any such URLs so that links can be made. In addition, Frank noted that if any members have personal home pages, the Society is looking to establish links to people with similar research expertise.

Frank reported that total APS staff on the FASEB campus now numbers 65, of which about two-thirds are in the Publications Department. He urged the membership to feel free to communicate with the staff and to get to know the staff.

VII. Awards and Presentations

A. Ray G. Daggs Award

Ray G. Daggs was the APS Executive Secretary-Treasurer from 1956 until his retirement in 1972. In tribute to his devotion to the Society, the Ray G. Daggs Award was established, and is given annually to a physiologist for distinguished service to the Society and to the science of physiology.

Jefferson was pleased to announce that the recipient of the 1996 Ray G. Daggs Award is **Franklyn G. Knox**, who served as the 59th APS President in 1986-1987. (See page 230.)

B. Giles F. Filley Memorial Awards

As a result of a bequest from the family of Giles F. Filley, a memorial fund was established in 1993 to recognize excellence in respiratory physiology and medicine. Two annual awards are made to investigators who hold an academic rank no higher than assistant professor and are pursuing research in respiratory physiology and medicine. Awards are made to APS members working in the United States, who have demonstrated outstanding promise based on their research program.

President Jefferson presented the 1996 awards to **Troy Stevens** and **Michael M. Shi**. Stevens is from the University of Colorado and was selected for his investigation of whether calcium ion-inhibitable adenylyl cyclase establishes an inverse relationship between intercellular calcium concentration and cAMP content in pulmonary microvascular endothelium and whether it also promotes myosin light chain phosphorylation, filamentous actin depolymerization, and permeability in pulmonary microvascular endothelium. Shi, of the Harvard University School of Public Health, was selected for his investigation into whether an oxidative stress modulates expression of MIP-1 and MIP-2 protein levels and chemotactic activities, into characterizing oxidant-sensitive *cis*-acting elements controlling transcription of MIP-1 and MIP-2 genes and/or the stabilization of their mRNAs, and into cDNA cloning putative oxidant-sensitive *trans*-acting factors controlling MIP-1 and MIP-2 gene expression. Each recipient received a $12,000 check for use in their respective research program, a plaque, and reimbursement of expenses to attend the spring meeting.

C. Procter & Gamble Professional Opportunity Awards

The Procter & Gamble Company, a multinational, technically based consumer products corporation, provides support for the APS Professional Opportunities Awards. The APS Sections selected 17 predoctoral students, who are within 12-18 months of receiving a PhD degree and presenting a paper as first author at the spring meeting. The President recognized **Ted Logan** for making these awards possible by a generous grant to the Society and announced that Logan will be retiring at the end of the year. His replacement, **Joel Shulman,** was also recognized. Paid registration and $500 checks were given to the awardees. (See page 231.)

D. Caroline tum Suden/Frances Hellebrandt Professional Opportunity Awards

Twelve awards were made possible by the bequests of Caroline tum Suden and Frances Hellebrandt, who were longtime members of the Society. Awards are open to graduate students or postdoctoral fellows who present papers at the spring meeting. Recipients receive a $500 check for travel to the meeting, paid registration, and have access to the FASEB Placement Service. **Celia Sladek**, Chair of the Women in Physiology Committee, assisted the President in presenting the awards. (See page 233.)

E. APS-Genentech, Inc. Postdoctoral Fellowship

In 1993, the Society received a contribution from Genentech, Inc. to underwrite the cost of a postdoctoral fellowship in mammalian organ system physiology designed to recognize that many advances in cellular and molecular biology will ultimately require an understanding in the context of the whole organism. In 1994, Council decided to cost share the program, enabling the Society to award two postdoctoral fellowships. At the spring meeting in 1994, the Society announced that the recipient of the first fellowship award was **Robert O'Doherty**.

President Jefferson noted that the second APS-Genentech, Inc., Postdoctoral Fellowship in Mammalian Organ System Physiology was awarded to **Thierry Massfelder**, Yale University and the Veterans Affairs Connecticut Healthcare System. Massfelder will receive a stipend allowance of $32,000 and a minigrant of $3,500 for laboratory expenses.

F. NIDDK

President Jefferson announced that 33 NIDDK awards were presented to minority students to help them attend the Experimental Biology '96 meeting. (See page 232.)

G. William S. Middleton Award

The William S. Middleton Award is presented by the Veterans Administration to a scientist for outstanding research and activity in the VA system. Jefferson

Presentation of Giles F. Filley Memorial Award to Michael Shi and Troy Stevens by President Leonard Jefferson.

Presentation of VA William S. Middleton Award by Deputy UnderSecretary of Health Thomas L. Garthwaite to Gerald DiBona.

introduced **Thomas L. Garthwaite**, Deputy Undersecretary for Health, Veterans Administration, to present the award.

Garthwaite noted that the Middleton Award is the highest award given by the department for outstanding achievement in biomedical research. William S. Middleton served from 1955 to 1963 as the chief medical officer for the VA. Currently, the VA provides $257 million in research funding through competitive grants and a similar amount of salary support. In addition, the VA receives $0.5 billion in competitive NIH grants.

The 1996 Middleton Award was presented to **Gerald DiBona**, whose research covers basic and renal cardiovascular physiology and hypertension. In 1969 DiBona established his laboratory in Iowa City; since then he has risen through the ranks to his current position of Chief of Medical Services. DiBona is a current member of the APS Council.

Presentation of plaque to outgoing Councillor D. Neil Granger from President Leonard Jefferson.

H. Recognition of Outgoing Councillors

Councillors **D. Neil Granger** and **Barbara A. Horwitz** complete their terms at the close of this meeting. Jefferson expressed pleasure in having had the opportunity to serve on Council with them and recognized their dedication and guidance to the Society, presenting each with a plaque.

Announcing that this is **Brian R. Duling**'s last meeting as an officer of the Society, Jefferson said that it was "a special pleasure to thank him for his service to the Society." Jefferson took great delight in presenting Past President Duling with a plaque commemorating his presidency.

VIII. New Business

Sviatoslav Medvedev, the Russian organizer of the 33rd IUPS Congress in St. Petersburg, was introduced. Medvedev extended an invitation to everyone to attend the IUPS meeting, which will be held from June 30 to July 5, 1997, in historical St. Petersburg and during the time of the white nights. He noted that the best accommodations have been reserved for the meeting participants. He also emphasized that young scientists are especially welcome. The second announcement for the meeting was distributed, and Medvedev pointed out that the entirety of physiology will be represented at the IUPS meeting.

Jefferson then turned the gavel over to **James A. Schafer**, University of Alabama at Birmingham, the incoming President of the American Physiological Society. Schafer stated that, "on behalf of Society I would like to recognize the tremendous effort Leonard Jefferson has given APS as President this past year and previously as Editor of *AJP: Endocrinology and Metabolism* and Chair of the Section Advisory Committee, as well as all of the other things you have done and will continue to do for the Society."

Presentation of plaque to Past President Brian Duling from President Leonard Jefferson.

In closing, Schafer stated "I thank the membership for its confidence in electing me, but I will need everyone's help in tackling what I have set out as the challenges facing the Society in my article in *The Physiologist*."

There being no other business, the meeting was adjourned at 6:38 PM, April 16, 1996.

James A. Schafer
President-Elect

Presentation of plaque to outgoing Councillor Barbara Horwitz by President Leonard Jefferson.

Guide for the Care and Use of Laboratory Animals

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affirms the conviction that all who care for or use animals in research, teaching, or testing must assume responsibility for their well-being." The *Guide* goes on to explain that the goal of the document is "to promote the humane care of animals" while the "basic objective is to provide information that will enhance animal well-being, the quality of biomedical research, and the advancement of biologic knowledge that is relevant to humans and animals."

A careful distinction is made between performance goals and engineering standards, with an emphasis on performance goals oriented toward the needs of the animals themselves. Performance goals specify outcomes by providing criteria for assessing the outcome but do not specify how to achieve that outcome. Thus, performance goals allow some flexibility in achieving the goal by customizing the process to match the circumstances. Engineering standards, on the other hand, do not allow for professional judgment, flexibility, and individual circumstances. The *Guide* states the optimal animal care and use program achieves a balance between performance goals and engineering standards.

Regulations, Policies, and Principles

The 1996 *Guide* includes the same endorsement of the *US Government Principles for Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training* that was found in the 1985 *Guide*. These *Principles* are once again printed in their entirety in an appendix to the *Guide*. However, the 1996 *Guide* also highlights key points of the *Principles* in the Introduction.

One particular footnote appears four times in the 1996 *Guide* to remind readers that the *Guide* is written for a broad international audience, including some research institutions that are covered neither by the Public Health Service (PHS) Policy nor the Animal Welfare Act (AWA) regulations. The footnote reminds institutions that *are* covered by these regulations and policies that they must abide by them even when the *Guide* might recommend a different approach.

Definitions

As was the case with previous editions of the *Guide*, the use of the words "must" and "should" were given careful consideration. The ILAR Committee to Revise the *Guide* offers the following explanations to assist the reader in interpreting the 1996 version: the verb *must* "is used for broad programmatic or basic aspects that the Committee to Revise the *Guide* considers are imperative. The verb *should* is used as a strong recommendation for achieving a goal. However, the Committee recognizes that individual circumstances might justify an alternative strategy." The Committee further used the verb "recommends" to indicate a preferred method when other circumstances are equal.

The definition of a laboratory animal is changed somewhat from the 1985 version of the *Guide*. In that version, a laboratory animal was defined as "any warm-blooded vertebrate animal used in research, testing, and education." In 1996, the definition has been broadened to "include any vertebrate animal (e.g., traditional laboratory animals, farm animals, wildlife, and aquatic animals) used in research, teaching, or testing."

The Seventh Edition of the *Guide* also addresses the use of farm animals for both biomedical and agricultural research purposes. Under the old system, different standards were applied for the same animal depending on the category of its use. This led to a dual system of housing and care standards and protocol evaluation. The 1996 *Guide* dispenses with this dual system by stating that "regardless of the category of research, institutions are expected to provide oversight of all research animals and ensure their pain and distress are minimized." It states further that "the protocol rather than the category of research, should determine the setting (farm or laboratory). Decisions on categorizing research uses of farm animals and defining standards for their care and use based on user goals, protocols, and concerns for animal well-being should be made by the IACUC."

New Subject Areas

Additional subject areas addressed are nontraditional species and field investigations. In both sections, it is acknowledged that the diversity of species studied and conditions for conduct of the research make it impossible to provide detailed guidance on the requirements of these animals. The 1996 *Guide* recommends that expert advice on the natural history and behavior of nontraditional species be sought when these animals are to be brought into the research laboratory. It also advises that in some cases it may be necessary to approximate the natural habitat of the animal. When field investigations are proposed, the *Guide* recommends the IACUC be assured that all state and federal regulations are met and that zoonoses or other occupational health and safety concerns be reviewed.

The IACUC's Role

The section on institutional policies and responsibilities has been expanded and updated to conform with the Public Health Service Policy on Humane Care and Use of Laboratory Animals and the USDA Animal Welfare Act regulations. The scope of institutional policies and responsibilities has been expanded from the 1985 version of the *Guide* to include a description of the responsibilities of the institution, responsibilities of the IACUC, special considerations for protocol review (e.g., physical restraint, multiple major surgical procedures, and food or water restriction), veterinary medical care, qualifications of those doing procedures, and an occupational

health and safety program that is based on hazard identification and risk assessment. It points out the institution's responsibility to provide the IACUC with background materials, access to resources, and training.

The 1996 *Guide* emphasizes the investigator's responsibilities in developing protocols involving animals and further underscores the IACUC's authority, responsibility, and discretion. The range of topics the IACUC should consider in the review of protocols is expanded, and guidelines for protocol review are provided. The 1996 *Guide* recommends that at least one of the public members serving on the IACUC to represent community interests be someone who is not a laboratory animal user. The IACUC is now also charged with establishing a mechanism for receipt and review of concerns involving the care and use of animals.

Animal Environment, Housing, and Management

The name for this chapter has been changed to reflect a recognition that many factors are critical to the maintenance of laboratory animals. Thus, the more limited term "husbandry" has been updated to "animal environment, housing, and management" so that animal well-being is considered in a broader context that acknowledges the many variables that can impact well-being.

Performance standards and professional judgment are again highlighted in that this chapter states that specific operating practices will depend on a variety of factors that may be specific to each individual institution. Eight factors are listed that should be considered in determining the appropriate physical and social environment of the animals. The "outcome" approach that characterizes this chapter is embodied in the statement "Animals should be housed with a goal of maximizing species-specific behaviors and minimizing stress-induced behaviors."

Emphasis is placed on the role of the IACUC to provide oversight in this decision-making process, with the goal of achieving high standards that will maximize the health and well-being of the animals consistent with the research objectives.

The space recommendations section of the 1996 *Guide* is substantially expanded and differs from the 1985 version. It was the consensus of the Committee that to base cage size recommendations on floor space alone was inadequate. The 1996 version acknowledges that an animal's spatial needs are complex and that fulfillment of those needs is not a simple matter of how much floor space is provided. The *Guide* recognizes that other factors, such as vertical height, configuration of the space, and space complexity, can all affect space utilization. Thus, in this regard in particular, some of the *Guide*'s recommendations may differ from what is required by the USDA regulations. The Committee again recommends an outcome approach. In this case, animal performance data such as health, reproduction, growth, behavior, activity, and use of space are criteria that may be used to assess the adequacy of the space provided to the animal(s). Also, the Committee recommends that the IACUC review and approve any adjustments to the cage sizes recommended in the 1996 *Guide* and that the decision be based on the aforementioned performance standards.

The 1996 *Guide* suggests a raised resting surface for cats, dogs, and primates. It also encourages social housing and does not require a direct linear increase in space as the number of animals in the cage is increased, since the Committee felt it was more important for colony managers to be aware that space needs may increase or decrease as animals are housed socially. The Committee strongly urges the users of the Seventh Edition of the *Guide* to combine the recommendations appearing in the tables with the accompanying narrative because that section contains valuable and comple-

NIH OPRR Workshop Change

There has been a topic change in the NIH OPRR Workshop scheduled for September 19-20, 1996 in Denver, Colorado.

The topic will be: *The 1996 Guide for the Care and Use of Laboratory Animals: The Era of Performance-Based Standards*

This will be the *first* national meeting and the *only* NIH-sponsored meeting this year to be devoted to changes, modifications, and new requirements as found in the 1996 *Guide*.

Location: Adams Park Hotel, 1550 Court Place, Denver, Colorado.
Tel.: 303-893-3333, fax: 303-623-0303

Sponsors: University of Colorado Health Sciences Center, Denver, CO University of South Colorado, Pueblo, CO; ILAR

Registration Fee: $175.00

Registration Information: Joann Bauer, Continuing Medical Education Office, University of Colorado Health Sciences Center, 4200 East Ninth Avenue, Campus Box C295, Denver, CO 80262, telephone: 1-800-882-9153

mentary information. Using the two together will aid interpretation of the tables.

The section on temperature and humidity no longer discusses the metabolic and physiological mechanisms that interrelate with these environmental variables. Rather, it focuses on variables that the colony manager can control, such as husbandry practices and housing design. The new section also emphasizes those circumstances that may require modified levels of temperature and humidity, i.e., postoperative recovery, maintenance of newborn chicks, etc. Importantly, in response to public comments received, the range of acceptable humidity levels has been expanded to 30-70% for all common laboratory animals. Also, the acceptable temperature ranges have been modified. For most species, the values appearing in the 1985 Guide have been rounded. Thus, a temperature that had been given as 64.4°F is now listed as 64°F. Again, in response to public comments, the acceptable temperature range for housing rabbits has been modified so that the upper limit has been increased to 72°F (from 69.8°F).

The section on ventilation has been greatly expanded and provides more opportunity for the use of professional judgment in determining appropriate ventilation rates. Specifically, the long-standing guidance of 10-15 air changes per hour while still considered to be generally acceptable does not take into account many significant factors. These include the range of possible heat loads; the species, size, and number of animals; the type of bedding or frequency of cage changing; the room dimensions; or the efficiency of air distribution from the secondary to the primary enclosure. Therefore, the Committee recommended acceptance of an alternative method of calculating required fresh air exchanges by using the average-total-heat-gain formula published by the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE). It should be noted that this calculation provides the number of air exchanges requisite to prevent heat buildup; other factors such as control of odors, allergens, and metabolically generated gases are not a part of the calculation so the figure might need to be increased to address them.

This section also addresses new subjects, including caging with forced ventilation, filtered isolation caging without forced ventilation, and the recycling of air. For this latter point, the general recommendations in the 1985 *Guide* are expanded, setting a maximum of 50% recirculated air, and defining other criteria to make the practice acceptable.

The sanitation section has been restructured to better define the essential components of an effective sanitation program. These include bedding change, cleaning and disinfection of primary enclosures, cleaning and disinfection of secondary enclosures, and assessment of the sanitation program. The new section acknowledges that some types of caging systems (e.g., ventilated cages) may require less frequent cleaning, whereas other housing systems (e.g., densely populated enclosures) may require more frequent sanitation. The traditional cage wash temperature of 180°F is noted, but this criteria has been relaxed because research findings have shown that time and temperature are both important variables to achieve effective disinfection. For example, a longer wash cycle at a lower temperature may also be effective.

Monitoring the efficacy of sanitation is highlighted in the new section on sanitation. Methods that are considered appropriate include visual inspection, monitoring of water temperatures, and micro-

How to Get a Copy of the Guide

Institute of Laboratory Animal Resources
2101 Constitution Avenue, NW
Washington, DC 20418
Tel.: 202-334-2590
Fax: 202-334-1687
E-mail: ilar@nas.edu
Single copy available free of charge on request by telephone, fax, or email. Multiple copies can be purchased from the National Academy Press at 800-624-6242. Once it has been published, the *Guide* will also be made available on the National Academy of Sciences home page (http://www2.nas.edu/ilarhome/).

Office for Protection From Research Risks
6100 Executive Boulevard, Suite 3B01
Rockville, MD 20892-7507
Tel.: 301-496-7163
Fax: 301-402-2803
Single copy available free on request by phone or fax. By telephone, select options from the voice-mail menu for obtaining OPRR publications on animal welfare by mail, then leave your request for the *Guide* at the conclusion of the message.

American Association for Accreditation of Laboratory Animal Care
11300 Rockville Pike, Suite 121
Rockville, MD 20852-3035
Tel.: 301-231-5353
Fax: 301-231-8282
Single copy available free upon request by fax.

Guide for the Care and Use of Laboratory Animals

biologic monitoring. The use of animal odor as the sole criteria for assessing the effectiveness of the sanitation program is discouraged.

Physical Plant

The majority of the chapter on physical plant remains very much the same in the 1996 *Guide* as in the 1985 version. However, some recommended features of the physical plant of an animal care and use facility have been added or modified. For example: if animal room doors are locked, one must be able to exit the room without a key; the recommended corridor width has been modified from 7 feet to 6-8 feet; windows in animal rooms are no longer discouraged since they may be a form of environmental enrichment for some species; discussions have been added concerning safe bedding disposal, prewash activities, and noise attenuation; and more detail is provided regarding surgical facilities, i.e., while five functional components are still recommended, their separation may be physical, by distance or by time.

Conclusion

Researchers, IACUC members, veterinarians, and others involved in animal care and use programs should read the new *Guide* thoroughly to identify differences between the 1985 and 1996 versions. Publication is expected by the end of the summer, and OPRR will send a copy to each institution with a Public Health Service Assurance on file. There will be a transition period before the recommendations of the new *Guide* are fully implemented. Additional copies may be obtained from ILAR, OPRR, and AAALAC (see p. 210). ❖

Committee Reports

Animal Care and Experimentation Committee

The Animal Care and Experimentation (ACE) Committee makes a continuing effort to monitor activities that may impact the use of animals in research, teaching, and testing. One recent development of major importance is a proposal under discussion by the USDA to eliminate Class B dealers as suppliers of random-source dogs and cats for research over a two-year period. USDA says it wants to eliminate this role for Class B dealers because it cannot adequately ensure their compliance with Animal Welfare Act requirements for animal identification records. This, along with the misguided public perception that pet theft is a major source of dogs and cats used in biomedical research, has also lead to the introduction in Congress of two bills that would eliminate virtually all non-purpose-bred animals from research in one year or less. Purpose-bred animals cost 3-10 times more than random-source animals, and it is expected to be the most difficult and expensive to obtain mature dogs and cats. In fact, according to surveys by NABR, AHA, and APS, purpose bred dogs (which are supplied by Class A dealers) weighing over 40 lbs. and older than two years are not available at any price. This past year the ACE Committee recommended, and Council adopted, a resolution noting the importance of random-source animal dealers where pound animals are unavailable and supporting the need for USDA to have the resources it needs for adequate inspections and oversight.

A representative of the ACE Committee is participating in a discussion group on USDA pain classifications. This group is reviewing the current USDA Annual Report categories for pain and distress classifications in laboratory animals. The current categories are vague and are often misinterpreted, leading to inaccurate information being reported to the public. The USDA wishes to modify its reporting requirements to help regulators and the public obtain accurate information pertaining to pain/distress levels of animals used in research, teaching, and testing. The discussion group has met twice and has drafted a preliminary recommendation for changing the reporting requirement. However, further work is needed before the recommendations can be forwarded to the USDA for their consideration. The ACE Committee will monitor the progress of this group.

The ACE Committee sponsored a symposium entitled “Animal Welfare Update: the Regs, the Guide, and the Congress” at the Experimental Biology ‘96 meeting in Washington, DC. Speakers included representatives from the USDA, OPRR, ILAR, NABR, and APS. Issues discussed focused on upcoming changes proposed by the USDA, how OPRR is proposing to reduce the paperwork burden on institutions, what changes are included in the new *Guide for the Care and Use of Laboratory Animals*, animal isssues currently before Congress, and a phys-

iologist's "view from the trenches." It proved to be a popular forum and led to a 1.5-hour discussion period following the presentations. The ACE Committee expects to sponsor another symposium next year along the lines of "Are We Losing Our Expertise With Whole Animal Physiology, and Does That Matter?"

C. Terrance Hawk, Chair

Awards Committee

The Awards Committee was established by Council in 1995. The duties of the Committee are to *1)* oversee all of the awards programs of the Society to ensure uniformity and conformity with the goals of APS; *2)* investigate new means of funding for the APS awards program, especially with regard to expansion of the program; *3)* select the Research Career Enhancement awardees and the APS-Genentech awardee; *4)* coordinate the selection process for the Cannon and Bowditch Awards and present possible names of candidates to Council; and *5)* review procedures for the selection of sectional awards and recommend possible changes.

Since its inception, the Awards Committee has devoted most of its efforts to selection of the recipients of the Research Career Enhancement Awards and the APS-Genentech Award. The Research Career Enhancement Awards are designed to enhance the career potential of APS members in good standing. The Awards provide up to $4,000 to allow individuals in the early phases of their careers to obtain special training and in later phases of their careers to develop new skills and to retrain in areas of developing interests. These Awards can be used to support either short-term visits to other laboratories to gain new scientific skills or for attendance at special courses devoted primarily to specialized methodologies (e.g., molecular biology techniques workshop). Applications for the Research Career Enhancement Awards are reviewed twice a year, with deadlines on February 15 and August 15. Applications may be obtained from the APS Headquarters offices.

In three rounds of review (spring and fall 1995 and spring 1996), the Committee has received 20 applications for the Research Career Enhancement Awards, with 7 awards given. In 1995, awards were made to Jane McGowen (University of Pennsylvania), Xiao-Jian Yuan (University of Maryland), Craig Gelband (University of Florida), and Peter Wilkins (Purdue University, North Central). The 1996 recipients include Joseph Brozinick (NIH/NIDDK), Michael Overton (Florida State University), and Gregory Stahl (Harvard University). Because the number of applications for these Awards is less than originally anticipated, Council has charged the Awards Committee with reevaluation of the program and consideration of mechanisms for increasing awareness of the membership for the benefits of the Research Career Enhancement Award.

The APS-Genentech Postdoctoral Fellowship, established in 1994 as a collaborative effort between the APS and Genentech, Inc., recognizes the increasing need to promote the training of integrative physiologists in the use of molecular biological tools as well as the training of molecular biologists in the use of organ system approaches. Hence, this Fellowship places emphasis on postdoctoral training opportunities that bring together trainees and sponsors whose joint project makes use of both mammalian organ system physiology and molecular biology. The award is for a two-year period and includes an annual stipend ($32,000) and a trainee allowance ($3,500). In the last two rounds of competition, an average of approximately 40 applications were received and evaluated by the Committee. The 1996 recipient of the APS-Genentech Fellowship is Thierry Massfelder from Yale University School of Medicine, who will learn molecular biology techniques in the host laboratory of Andrew Stewart. The APS-Genentech Postdoctoral Fellowship program is currently suspended, pending a decision by Genentech, Inc. as to whether they will continue their financial support of the program. Future announcements of any reopening of the APS-Genentech Fellowship program will appear in the APS journals, the *Journal of NIH Research*, and *Science*.

The Awards Committee urges Council to continue its support for the Research Career Enhancement Awards and the APS-Genentech Postdoctoral Fellowship. It also recommends that the Society, and its constituent sections, make a greater effort to inform the membership of the availability and benefits of these APS awards.

D. Neil Granger, Chair

Careers in Physiology Committee

Career Opportunities in Physiology Symposium

The Career Opportunities in Physiology Symposium presented at Experimental Biology '96 was again very successful. The symposium was well attended and provided the opportunity to hear career professionals discuss career demands in various areas offering employment in physiology. This year's speakers from APS, a basic science department, a clinical department, the pharmaceutical industry, National Association of Biology Teachers, and the Department of Energy discussed careers in each of these areas. The emphasis of the presentations was how to prepare for and succeed in these career venues, as well as comparing and contrasting duties and obligations in each of these areas. The reception following the symposium provided the audience with the opportunity to talk to the speakers in an informal setting and was a valuable component of the symposium. The Career Opportunities in Physiology Committee feels

that this symposium is an efficient and effective avenue for providing information regarding careers in physiology.

The Committee feels that future symposia should provide attendees with *1)* a questionnaire that should be completed and turned in following the symposium to provide feedback to the Career Opportunities in Physiology Committee and to APS on the value of the symposium and possible improvements and *2)* a listing of resources that provide employment information for physiologists, i.e., *Science*, *Chronicle of Higher Education*, etc.

Careers in Physiology Poster

The initial printing and mailing of 1,600 "Physiology—A Career for Life" in 1994 was very successful. During 1994-1995, the Education Office received over 1,200 reply cards requesting additional information regarding careers in physiology. This number dropped to approximately 400 inquiries during 1995-1996. The total cost for development, printing, and mailing the poster was approximately $4,000. The Career Opportunities in Physiology Committee feels that this project was successful and supports a second printing and mailing of this poster during summer 1996. The Education Office will request information regarding the cost of printing and distribution of the careers in physiology poster.

Steven L. Bealer, Chair

Table 1. Committee on Committee Members

Section	Name and Term Expiration
Environmental	Barbara Horwitz* (96)
Water & Electrolyte	Gerald DiBona** (97)
Cardiovascular	David Harder (97)
Cell & General	Peter Cala (98)
Central Nervous System	Bruce Lindsey (99)
Comparative	Jeffrey Hazel (97)
Endocrinology & Metabolism	Gerald Shulman (96)
Environmental	Suzanne Fortney (97)
Gastrointestinal	P. Gunter-Smith (97)
Neural Control & Autonomic Regulation	Eileen Hasser (96)
Renal	David Ploth (96)
Respiration	Erik Swenson (98)
Teaching	Robert Carroll (98)
Water & Electrolyte	Joey Granger (98)

*Chair
** Incoming Chair

Committee on Committees

The Committee on Committees makes recommendations for committee appointments to Council from nominee lists provided by the membership. Following is a description of the process that occurs for selection of new committee members. A nomination form can be obtained from the APS headquarters offices or from the APS home page (http://www.faseb.org/aps/).

Process of Committee Membership Selection

During November and December, nominations are solicited from the Council members, members of the Committee on Committees, committee chairs, section chairs, and members of the Association of Chairmen of Departments of Physiology, as well as from the general membership. By January or February, the Committee on Committees receives a list of all nominees and their nominations forms.

By February or March, each member of the Committee on Committees chooses his/her slate of candidates and an alternate for each committee. Selection is based on qualifications for the particular committee appointment. Section affiliation, gender, and minority or junior investigator status are also given serious consideration. In March, the APS office prepares a list of nominees ranked by the number of votes.

At the spring APS meeting, the Committee on Committees

Table 2. Projected New Committee Appointments

Number	Section
10	A Cardiovascular
0	B Cell & General
0	C Comparative
2	D Endocrinology & Metabolism
1	E Environmental
3	G Gastrointestinal
2	J Central Nervous System
6	K Neural Control & Autonomic Regulation
9	L Renal
2	M Respiration
1	N Teaching
5	O Water & Electrolyte
4	U Undeclared

meets to select the final slate of candidates for committee vacancies. At the summer Council meeting, the Committee on Committees Chair presents the Committee's report and recommendations concerning appointments for committees to Council. Council approves all appointments to committees for service starting in January of the following year.

In summer or early fall, members are notified of their appointments to committees.

Barbara A. Horwitz, Chair

Education Committee

The Education Committee was active during the past year in four separate educational arenas. In the area of continuing education for physiologists, the Education Committee sponsored a refresher course on gastrointestinal physiology at Experimental Biology '96 in Washington, DC. This Sunday morning program was aimed toward physiologists who have teaching responsibilities for this area of physiology, even though it is not their primary research area. The program included review lectures by Helen Cooke, Leonard R. Johnson, and Norman Weisbrodt on new developments that have just recently or have not yet made it into the textbooks and exhibits of relevant audiovisual and computer-based educational material. A similar course on respiratory physiology is being planned for Experimental Biology '97 in New Orleans.

The Society's involvement in precollege science education continued to grow and evolve during the past year in its Frontiers in Physiology project. Using funds from a National Science Foundation grant, a continued APS investment, and a renewed NIDDK grant, we were able to support 23 middle and high school teachers with 1995 summer research fellowships that allowed them to work in the laboratories of APS members. Because of increased cost-sharing by several host institutions, the Frontiers in Physiology program will support an additional 29 teachers during the summer of 1996. In addition, the Frontiers in Physiology grant supports a week-long Summer Institute for these teachers in which they receive more in-depth content exposure, practice specialized teaching techniques, and develop specific hands-on science activities for use in their classrooms. Moreover, the Frontiers in Physiology grant has also supported the development of two model In-Service Workshops—one on Neural Networks for middle school science teachers (developed by Jack Wood and collaborators in Columbus, Ohio) and the other on the physiology of fitness for high school science teachers (developed by Frank Powell and collaborators in San Diego). These two-day workshops were developed by collaborative efforts of physiologists and teachers in the two locations and were field tested in those cities. This year nine additional groups across the country will use these field-tested materials to conduct additional In-Service Workshops.

The Education Committee has begun to explore possible useful activities in the area of undergraduate college physiology education. By finding common areas of interest and avenues for cooperation with other professional societies and groups, such as the Human Anatomy and Physiology Society (HAPS) or the Coalition for Education in the Life Science (CELS), the APS hopes to achieve its strategic goals of attracting the best students to physiology, ensuring that physiology is appropriately represented in lie and health science education, and developing a scientifically literate public.

Most recently, the Education Committee has turned its attention to issues related to graduate and professional education. Despite current trends to alter the mode and goals of the education of physicians and other health professionals, it is imperative that physiology—as the science of body function and the foundation for the understanding of disease mechanisms—retains a central place in the education of all health professionals. In terms of graduate education in physiology, there is growing concern over the number and types of career opportunities available for physiologists and other life scientists in today's marketplace. Graduate education programs, therefore, must be capable of training physiologists who are capable of succeeding and contributing in this environment. The Society needs to analyze the various facets of these big issues and then formulate effective programs and positions that promote these ultimate goals. The Education Committee held an open panel discussion during the Experimental Biology '96 meeting in Washington, DC, to begin to address these challenging questions.

Francis L. Belloni, Chair

Finance Committee

During the spring meeting of Council, it is the responsibility of the Finance Committee Chair to review the 1995 budget versus actual income and expenses and to present the modified 1996 budget based on the 1995 actual figures. Before the 1995 and 1996 budgets are reviewed, it is important to recognize that the Society is financially sound. Thanks to the efforts of Franklyn Knox and Norman Alpert, the previous Finance Committee Chairs, APS finances have been well managed, providing us with resources to initiate new programs and expand existing ones.

With nearly $20 million in managed reserves, the Finance Committee recommended and the Council approved the alloca-

tion of up to 4% of the value of the managed accounts for new and existing program initiatives. It was emphasized that society members should realize benefit from these new funds. It was also recommended that each society cost center be charged a uniform general and administrative rate to support operations of the business and executive offices.

The Society employs a consolidated operating budget to assess overall operations. The consolidated budget is comprised of the individual budgets for the various cost centers, including publications, membership services, education, public affairs, marketing, executive, and business offices. For 1995, the year ended with income of $10,735,163 and expenses of $10,369,264 for an income over expenses of $365,899. Based on last year's performance, the revised 1996 budget approved by Council projected income of $12,131,961 and expenses of $11,767,222, with income over expenses of $364,739.

The Finance Committee is also responsible for reviewing the performance of the four groups managing our investment accounts through the consultative services of Smith Barney. As of December 31, 1995, the accounts had the following market values: Operating Reserve Investment Account I = $5,634,552, Operating Reserve Investment Account II = $4,992,490, Publications Contingency and Reserve Account = $6,976,459, Second Century Program Fund = $1,611,726, Caroline tum Suden Account = $399,312, IUPS Account = $297,457, Perkins Memorial Fund = $183,792, and Giles F. Filley Memorial Fund = $548,454.

During the spring meeting, Council is also asked to consider the Publications and Finance Committees' recommendation for 1997 subscription prices. As a result of discussions between the two committees, it was recommended that the journal prices be increased to reflect the actual cost of production of each APS journal and to set prices so that none of the scientific journals lost money. With Council's approval, the domestic institutional journal prices will be increased in 1997 by the following percentages: consolidated *American Journal of Physiology* = 8.8%, *Journal of Neurophysiology* = 8.8%, *Journal of Applied Physiology* = 5.0%, *Physiological Reviews* = 3.0%, *AJP: Cell Physiology* = 13.0%, *AJP: Endocrinology and Metabolism* = 14.0%, *AJP: Gastrointestinal Physiology* = 7.0%, *AJP: Lung, Cellular and Molecular Physiology* = 20.0%, *AJP: Heart and Circulatory Physiology* = 3.2%, *AJP: Regulatory, Integrative and Comparative Physiology* = 6.0%, *AJP: Renal, Fluid and Electrolyte Physiology* = 0.0%, *AJP: Advances in Physiological Education* = 5.0%, *News in Physiological Sciences* = 5.0%, and *The Physiologist* = 5.0%. Member prices are set at one-third of the domestic institutional rate. The Council discussed whether the disparity between member prices and institutional prices might be increased as an added membership benefit. In addition, it was suggested that the Society might want to allow the members to receive a free subscription to the journal of their choice (*Journal of Applied Physiology, Journal of Neurophysiology, Physiological Reviews*, or an individual *American Journal of Physiology* journal). The APS staff was urged to review the implications of these possibilities.

The Finance Committee endorsed the Publications Committee's recommendation that the cost of color figures be subsidized by the Society, reducing the cost to authors from an average of approximately $650 to $250. The Council endorsed the recommendation, stipulating that the use of color must be necessary in the view of the editor and that the subsidized rate would only apply if the author pays page charges. The subsidization of color will start with the January 1997 issues of the journals, at which time page charges will be $60 per page.

The Council approved the utilization of the accumulated income from the IUPS managed account to support the travel

APS Statement of Financial Position

December 31, 1995

Assets	
Cash and cash equivalents	$ 1,254,863
Investments	25,876,724
Accounts receivable	1,026,532
Accrued interest receivable	162,009
Advances to section editors	214,310
Prepaid expenses	47,522
Furniture, fixtures, and equipment	149,682
Total assets	$28,731,642

Liabilities	
Accounts payable and accrued expenses	$ 877,389
Amount held for custodial funds	37,662
Unearned revenue	
Subscriptions	5,102,895
Dues and other	242,540
Total liabilities	$ 6,260,486
Net Assets	
Unrestricted	$21,590,282
Temporarily restricted	868,374
Permanently restricted	12,500
Total net assets	22,471,156
Total liabilities and net assets	**$28,731,642**

award program to the 1997 IUPS Congress in St. Petersburg, Russia. The Finance Committee expects that approximately $72,000 will be available from the account. In addition, federal and corporate sources are likely to contribute an additional $36,000. As a result, the Society should be able to make approximately 120 awards of $800–$900 each.

In reviewing the budget with Council, it was recognized that the Strategic Plan mandated the utilizations of investment income for society programs. It will be the responsibility of Council, with the assistance of the society committees, to develop innovative ways to use the funds for membership benefits. The Finance Committee will be responsible for assessing

APS Statement of Activities
for the year ended December 31, 1995

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Revenue:				
Subscriptions	$ 6,550,710	$	$	$ 6,550,710
Back single issues reprints	1,029,212			1,029,212
Advertising and page charges	1,384,772			1,384,772
Sale of handbooks and royalties	62,662			62,662
Sale of monographs and special publications	2,190			2,190
Membership dues	432,532			432,532
Voluntary contribution and assessment	56,590	81,850		138,440
Conferences and meetings	399,876			399,876
Symposium and program support	42,248			42,248
Grants and contracts	440,665			440,665
Interest and dividends	950,126	31,761		981,887
Other income	14,790			14,790
Net assets released from restrictions	183,405	(183,405)		—
Total support and revenue	$11,549,778	$ (69,794)		$11,479,984
Expenses:				
Program services:				
Publication	8,466,677			8,466,677
Publication special	320,016			320,016
Society general	1,278,995			1,278,995
Publication contingency reserve	108,802			108,802
Second century	21,614			21,614
Strategic goals	163,867			163,867
Council designated	685,923			685,923
Total expenses	11,045,894			11,045,894
Increase (decrease) from operations	503,884	(69,794)		434,090
Net realized gains on investments	916,611			916,611
Net unrealized gains on investments	3,018,628			3,018,628
Cumulative effect on prior years of a change in method of accounting for investments	551,410			551,410
Cumulative effect on prior years of a change in method of accounting for contributions	829,001	938,168	12,500	1,779,669
Increase in net assets	5,819,534	868,374	12,500	6,700,408
Net assets, beginning of year	15,770,748			15,770,748
Net assets, end of year	$21,590,282	$ 868,374	$ 12,500	$22,471,156

the cost/benefit ratios of existing programs and the tracking of the cost of new programs. The goal of the Council and Finance Committee is to develop programs that encourage the participation of young scientists in the APS and meet the needs of established investigators.

The Finance Committee is also responsible for receiving the annual audit performed by Coopers and Lybrand. The audit found the operations of the Society to be "in conformity with generally accepted accounting principles" and that the financial statements "present fairly in all material respects, the financial position of The American Physiological Society as of December 31, 1995." For the information of the membership, the Society's 1995 Statement of Financial Position and Statement of Activities are provided for review.

Edward H. Blaine, Chair

International Physiology Committee

The current International Physiology Committee met for the first time during the Experimental Biology '96 meeting in April to consider its "raison d'être" and its future course.

The Committee decided that it would focus on only one activity for the foreseeable future: providing access by the physiologists of the world to the APS data bases and its other activities, current and projected, using modern electronic communication technology. It is planned to pursue this initiative in concert with the US National Committee of the IUPS and, ultimately, with the IUPS itself.

As a first step in this undertaking, the International Physiology Committee plans to explore the resources of SatelLife, an international not-for-profit electronic communications organization devoted to exchanges of medical information in the Third World, with the purpose of making our own electronic services available to physiologists in these developing countries.

Ernst Knobil, Chair

Liaison With Industry Committee

The Liaison With Industry Committee continues to foster the interaction between physiologists working in industry and the American Physiological Society by encouraging participation in Society symposia, editorial boards, and committee appointments. Most recently the Committee has discussed the guidelines for establishing an award to young investigators, with the recommendations to be presented to the Council.

The Committee sponsored one symposium that was presented at Experimental Biology '96 in Washington, DC, and cosponsored two of the symposia approved for the Experimental Biology '97 agenda. Efforts to solicit and evaluate symposia proposals from industrial physiologists are continuing. Topics related to disease models and potential therapeutic targets are being encouraged.

The Committee has provided the editors and associate editors of the APS journals with a list of potential reviewers and their fields of expertise. The Committee will recommend to Council that the memberships of editorial boards be determined by the participation of the individual reviewers.

The Liaison With Industry Committee continues to work closely with Marsha Matyas, the APS Education Officer, to review materials for distribution by visiting scientists at local schools. Industrial scientists will be encouraged to consider using a package of information that will soon be available to APS members. In addition, industrial physiologists will be asked to help staff a speakers' bureau that will be available for classroom work in local schools.

The Committee has discussed the guidelines for two Young Investigator Awards to be presented to one graduate student and one postdoctoral fellow each year. APS members will be encouraged to submit abstracts pertaining to integrative biology, especially biological models of disease for consideration by the Committee. The best scientific contributions from a graduate student and a postdoctoral fellow would be awarded $300 and $500, respectively, from funds solicited from corporate sponsors. These recommendations will be presented for the Council's consideration in July 1996.

The Liaison With Industry Committee has continued to encourage the active participation of industrial physiologists in APS-sponsored symposia, publications, and educational efforts. The Committee continues to explore additional opportunities to foster productive interactions between APS and its members who work in industry.

Andrea A. Seymour, Chair

Long-Range Planning Committee

The Long-Range Planning Committee is pleased to see that several of the recommendations made by the Committee to Council last year have already been implemented. For example, during the Experimental Biology '96 meeting in Washington, DC, the scheduling of the Walter B. Cannon Lecture on Sunday preced-

ing the President's Reception has been very successful in making physiologists feel the identity of APS and being a part of the EB meeting.

The major activity of the Long-Range Planning Committee during the past year was the preparation of a report on the future of physiology as a discipline and the role of the American Physiological Society in it, as charged by Council. Teleconferences were held on October 30, 1995, January 26, 1996, and March 25, 1996, and a face-to-face meeting was held in Washington, DC, on April 14, 1996. The meeting in Washington, DC, was attended, in addition to the Long-Range Planning Committee members, by Brian Duling, Past President, and Allen Cowley, Jr., the soon-to-be President-Elect, Francis Belloni, Chair of the Education Committee, and Aviad Haramati, a past member of the Education Committee. Another teleconference has been scheduled for June 18, 1996.

The report is currently in its fourth draft, and it is anticipated that a penultimate draft will be submitted prior to the July Council meeting for comments and suggestions by Council and relevant units in the Society. A final report will be submitted following another round of Long-Range Planning Committee discussion based on these inputs.

The report will cover the following major topics: *1)* physiology as a discipline (integrative nature of physiology, recruitment of young scientists, and the state of the discipline of physiology), *2)* physiological education (physiology teaching in medical schools, graduate education, and teaching of physiology to undergraduates), *3)* physiological research (impact of molecular biology and genetics on physiological research, relation of physiological research to clinical investigation, and funding of physiological research), *4)* departments of physiology (importance of departments of physiology, faculty of physiology, and time demands), *5)* roles of the American Physiological Society (education, research, meetings, publications, participation in Society governance, and recruitment of students), and *6)* perspectives. At the end of the report, specific recommendations will be made regarding education, research, and the roles of the American Physiological Society.

It was the consensus of the Long-Range Planning Committee that physiology as a discipline and the APS have come a long way since the last Long-Range Planning Committee report published in 1990. Through the cooperative efforts of APS, departments of physiology, and physiologists, we have made significant strides in integrating molecular and cell biology into physiology, as reflected in our research, teaching, meetings, and publications. We not only should continue and amplify our efforts in using the integrative approach in physiological research, but we should also incorporate this type of approach in our education of medical and graduate students, as well as the continuing education for physiology faculty who need this type of expertise. We must rise to meet the challenges and seize the opportunities as we enter the twenty-first century. The future for physiology as a discipline and for APS is very bright indeed.

Shu Chien, Chair

Membership Committee

The activities of the Membership Committee during the past year were centered primarily around reviewing applications for Regular and Corresponding membership. The review process was modified this year to ease the number of applications reviewed by each Committee member and to increase the efficiency of the review process. There are now two teams of reviewers made up of three Committee members each, with the Chair of the Committee serving as a tie-breaking vote as well as the coordinator of the overall review process. In addition, appications for Regular and Corresponding membership are now reviewed three times per year (fall, winter, and spring) to coincide with the meetings of the APS Council.

A total of 314 new members were accepted into the Society from the fall 1995 and winter 1996 application reviews. Fifty-seven of these were accepted as Corresponding members. Of the 257 new Regular members, 72% are PhDs, 17% hold an MD degree, and the remainder include individuals with MD/PhDs, DVMs, Masters, and other degrees. The average age of new Regular members is 40 years of age, and 23% are women. Postdoctoral fellows made up 12% of the new Regular members, 30% are assistant professors, 22% are associate professors, and 11% are full professors, with an additional 25% who hold positions such as research scientists, instructors, etc.; some of these latter individuals hold positions in industry.

The Membership Committee is beginning to explore new ways to recruit and retain members in the Society, including the value of existing member benefits and the creation of new benefits and services to members. Current APS members who have suggestions about ways in which the Society could better attract and serve scientists engaged in physiological research, or whose research has a physiological component, are encouraged to share their ideas with the Chair of the Membership Committee or directly with Council.

Hannah V. Carey, Chair

Perkins Memorial Fund Committee

The Perkins Memorial Fund Committee supervises maintenance of the Perkins Memorial Fund and reviews applications and selects recipients of the award, which enables visiting foreign scientists to also bring his/her family to the US to enhance their experience.

In June 1995, the Committee considered one application and recommended its funding. Magnus Bergenfeldt received the Perkins Award for the period of July 1, 1995 through July 1996. His host is Asrar B. Malik of Rush University, Chicago..

For the December deadline, the Committee considered two applications for the Perkins Memorial Fellowship Award and recommended approval of both. Carlos Telleria received the award for January 1996 through September 1997 in the laboratory of Geula Gibori of the University of Illinois at Chicago. Yu Zheng received the award for January 1997 through August 1997 in the laboratory of Alan D. Miller of Rockefeller University.

All funds available for the 1995 awards were used.

Aubrey E. Taylor, Chair

Porter Physiology Development Committee

In the past year since the meeting of the Porter Physiology Development Committee during the Experimental Biology '95 meeting, we have maintained the support of eight predoctoral and two postdoctoral Porter Fellows. A total of 79 fellows has been supported by the program since 1962-93.

The William Townsend Porter Foundation once again voted to distribute additional funds to the Society on the basis of a $1.00 grant for each $2.00 raised by the Society from March 1, 1995, to February 28, 1996, from individual members and corporate donors over and above the $50,000 already committed by the Foundation. The upper cap on the additional grant from the Foundation is $20,000. We express our genuine appreciation to the Porter Foundation for their generous support and continued commitment to the program. As part of this report, we wish to record our sadness at the death of our former Committee Chairman and sustaining supporter, A. Clifford Barger, who also served as President of the Foundation.

We are pleased to report that the Society contributed $25,000 again in 1995 in support of the program. This level of commitment by the membership is especially important in stabilizing the training program and also for cultivating potential donor interest.

One of our donors, the UpJohn Company Foundation, awarded their third and final year grant of $13,500, which is their last pledged award. Stephania Miller, graduate student in the Department of Physiology at the University of Arkansas for Medical Sciences, has been named the 1995-1996 UpJohn Company Foundation awardee. A new donor, the Procter and Gamble Company, has generously granted a $15,000 contribution to the Society, of which $5,500 is earmarked for the Porter Physiology Development Program. This amount will be augmented by $2,750 from the Porter Foundation as part of their commitment as described above.

The Porter Program announcement and application were distributed to all departments of physiology and MARC program directors in November 1995 with a deadline date for new and continuation applications of January 15, 1996. The Committee received four new predoctoral, two postdoctoral, and one undergraduate summer research fellowship applications for review. Four continuation/renewal requests were also received from current predoctoral fellows. Final action was taken on these requests during the Committee meeting in Washington, DC, on April 16, 1996.

Fellowship awards were granted to the following based on the rank of their priority scores and on available funds: Heidi Collins, Northeastern Ohio University College of Medicine (renewal); Robert Espinoza, University of Nevada, Reno (renewal); Maria Leavitt, Eastern Veterans Administration Medical School (new); Jason Hokama, University of Arizona Health Sciences Center (new); and Stephania Miller, University of Arkansas Medical School (renewal).

The Porter Physiology Development Committee is pleased to announce that one of our previous undergraduate summer research fellows (June–August 1993), Abraha Taddese, under the advisorship of Ed McCleskey at Vollum Institute for Advanced Medical Research, Oregon Health Sciences University, is now in the MD/PhD program at Harvard University. He is one of only six students accepted into their program last year. He is also one of 20 students chosen by *USA Today* as an academic all-star.

We are happy to welcome Margaret Colden-Stanfield as a new member to the Committee. At the same time, we extend our genuine gratitude to David Mohrman, whose term expired in December 1995 and whose contributions to the work of the Committee were important to its success.

1995-1996 Porter Fellows

Eight predoctoral and two postdoctoral fellowships were initiated or continued in 1995-1996.

Heidi Collins, predoctoral
Department of Physiology, Northeastern Ohio University College of Medicine
Advisor: S. E. DiCarlo

Robert E. Espinoza, predoctoral
Department of Biology
University of Nevada, Reno
Advisor: C. R. Tracy

Sheila A. Mathias, predoctoral
Department of Physiology
Meharry Medical College
Advisor: J. J. Mrotek

Debbi-Anne McDermott, predoctoral
Department of Physiology
Boston University School of Medicine
Advisor: J. F. Head

Ronald McMillon, predoctoral
Department of Physiology
University of South Alabama College of Medicine
Advisor: M. I. Townsley

Stephania T. Miller, predoctoral
Department of Physiology and Biophysics
University of Arkansas for Medical Sciences
Advisor: G. T. Blevins

Trina Murry, predoctoral
Department of Physiology and Biophysics
Wright State University School of Medicine
Advisors: P. K. Lauf and N. C. Adragna

Corigan Smothers, predoctoral
Department of Physiology
Meharry Medical College
Advisor: J. J. Mrotek

Maria Castro Laboy, postdoctoral
Department of Physiology and Biophysics
University of Puerto Rico Medical Sciences
Advisor: R. A. Furilla

Raymond Foust III, postdoctoral
Department of Physiology
Temple University School of Medicine
Advisor: T. H. Shaffer

Eleanor L. Ison-Franklin, Co-Chair

Program and Program Advisory Committees

I. Experimental Biology '96

EB'96 was held in Washington, DC, April 14 through 17, 1996. It was the fourth year for the thematic format. Scientific sessions and poster sessions were well attended. Situating the posters among the exhibits was thought to be a success by meeting attendees and exhibitors alike. As a consequence of the staggering of posters, attendance at the exhibits was spread more uniformly throughout the day.

There were four sponsoring societies at this year's meeting: APS, American Society for Pharmacology and Experimental Therapeutics (ASPET), American Institute of Nutrition/American Society for Clinical Nutrition/Society for International Nutrition Research (AIN), and American Association of Anatomists (AAA). In addition, four guest societies participated: American Society for Investigative Pathology (ASIP), The Biomedical Engineering Society (BMES), North American Society for Biorheology (NASB) and, Society for Experimental Biology and Medicine (SEBM).

The attendance was quite good. There were 7,446 registered scientists, 1,930 exhibitors, as well 723 "other" registrants, for a total attendance of 10,099 persons. Attendance remains a major concern for EB meetings, not only because it reflects the degree of interest by scientists but also because exhibitors, which are the major source of revenue from these meetings, are encouraged by good attendance.

EB'96 was organized, in part, around seven scientific themes: Cardiovascular Biology, Epithelial Cell Biology, Regulation of Growth and Development, Metabolic Processes in Health and Disease, Neurobiology, Respiratory Biology, and Signal Transduction. As in the previous year, certain symposia, workshops, tutorials, and other forms of presentation that had been selected by the program committees of each of the sponsoring societies were placed into the appropriate themes, and each theme ran throughout the week or part thereof, usually in the same hall(s). Abstracts that had been submitted for specific themes were accommodated under the themes as slide sessions, minisymposia, or posters, while the remaining abstracts were organized into similar forms of presentation under the auspices of each of the sponsoring societies.

EB'96 marked the institution of the Physiology InFocus program. Organized by Ray Frizzell, the program topic "Ion Channels and the Mechanisms of Disease" included four half-day symposia scheduled throughout the meeting. Attendance was mixed, although the quality of the sessions was outstanding. Plans have been made to ensure that Physiology InFocus at EB'97 will be a highlight, both scientifically and in premeeting

publicity.

EB'96 also marked the institution of Hot Topics symposia. Three of the symposia on the program were selected by the Program and Program Advisory Committees after review of five proposals submitted in October 1995. Attendance at these symposia was outstanding.

Out of a total of 4,783 volunteered abstracts submitted, 2,354 (49%) came through APS, an increase from EB'95 of 8%. Of the 4,768 total abstracts programmed, 2,829 (54%) were incorporated into themes, an increase from EB'95 of 10%. 1,939 (46%) were presented under the auspices of the sponsoring societies. Of the 2,354 abstracts submitted to the APS, 1,498 (64%) were presented as part of the themes, whereas 856 (36%) were presented as part of the societal program.

The Distinguished Lectureships, initiated by Council, were inaugurated at EB'94. Each of the twelve sections of the APS was given the resources to sponsor one Distinguished Lectureship to be named after an eminent physiologist and to be repeated annually at the EB meetings. By and large, these lectures were a tremendous success. As envisioned by the APS Council, they served as an impetus for each section to build an interesting program around the Distinguished Lecturer, not only through the lecture itself but also through special symposia based on the topic of the distinguished lecture, tutorials, and special luncheons or dinners that featured the Distinguished Lecturer and were geared especially to interactions of students and fellows with the Distinguished Lecturer.

II. Experimental Biology '97

The Program Advisory Committee (PAC) met on April 14 to discuss and score 44 proposals, which had been submitted by the Sections, Special Interest Groups, Committees, and Guest Societies. The work which is carried out in the manner of a study section, and was facilitated through Linda Buckler's preparation of a spiral-bound volume and through procedural guidelines that had been formulated by the PAC a year earlier. On April 16, the Program Committee, fine tuned the recommendation of the PAC by selecting the following sessions for presentation at EB'96. Of those sponsored by sections or groups, 23 symposia and 1 workshop were approved. Of those sponsored by guest societies, four were approved (2 BMES, 1 NASB, 1 SEBM).

In addition to these selections (which ultimately will appear either under themes or as part of the APS-sponsored program), there will be sessions based on submitted abstracts.

There is continuing awareness of the importance of including women and members of underrepresented minorities on the panels of invited speakers. By and large, the proposals that were reviewed this year showed this awareness. A sentence reminding proposers of this matter has been added to the application form for proposals.

Up to three additional Hot Topic symposia will be programmed from proposals received this October. Hot Topic proposals will again be reviewed for true "hotness," ranked and recommended to Council. Council will review the slate of Hot Topic proposals by mail ballot in November 1996.

The 1997 Physiology InFocus program on "Cell Signaling: Multiple Pathways, Integration, and Crosstalk" will be organized by William Chin. Seven symposia proposals were submitted to the PAC in April for review and comments. Four sessions have been selected with an additional session programmed in the Past-President's Symposium slot.

Sponsoring Societies will include APS, American Society for Investigative Pathology (ASIP), American Society of Nutritional Sciences/American Society of Clinical Nutrition/Society for International Nutrition Research (ASNS formerly AIN), and American Association of Anatomists (AAA); Guest Societies will include BMES, SEBM, NASB, and NAVBO.

The number of participating societies, and possibly more importantly, the participation of those societies with which the APS has greatest scientific affinity will be a growing problem as we approach the year 2000. For example, the absence of the American Society for Biochemistry & Molecular Biology (ASBMB), the American Society for Cell Biology (ASCB), the Biophysical Society (BS), and the ASPET is deplorable. While outstanding science is probably the main factor that will keep major societies at the EB meetings or bring them back to those meetings, Council must continue to discuss this problem and try to come up with innovative solutions.

III. APS Conferences

By and large, this program, which was initiated in 1991, has been very successful and is continuing to improve. We are striving for a goal in which APS Conferences will be so prestigious that they will become very competitive. That point is nearly at hand, but in the meantime we have to solicit proposals. For APS Conferences to be held in 1997 and 1998, possible titles and organizers were suggested by members of the PAC. Preliminary inquiries with potential organizers resulted in three proposals being submitted for 1997, three proposals submitted for 1998 and one proposal submitted for either year. Those chosen by the PAC and PC and approved by Council are:

1997 APS Conference "The Physiology and Functional Diversity of Amiloride-Sensitive Na^+ Channels: A New Gene Superfamily," organized by Dale Benos.

1998 APS Conference "The Paraventricular Nucleus of the Hypothalamus: A Crossroads of Integrative Physiology," organized by J.R. Haywood.

Review of the 1998 Intersociety Proposal from the Comparative Section entitled "Physiology and Biodiversity: Searching for Principles, Patterns and Pathways from Molecules to Organisms" has been deferred until July 1996.

Ethan R. Nadel, Chair

Public Affairs Committee

The APS Public Affairs Committee advocates the professional interests of the membership on behalf of the Society. Much of the time this is done in concert with the other member societies of FASEB. This gives us a stronger voice with the Administration and Congress than if we acted on our own. Thus, when you read of FASEB public affairs actions, these represent policies that have been developed with the APS Public Affairs Committee and APS Council. A portion of APS dues goes to support FASEB public affairs activities.

The primary concern in the past year has been adequate funding for physiological research by various federal agencies such as the Veterans Administration, NASA, and others, but particularly by NSF and NIH.

Following a series of government shutdowns in late 1995, a 5.7% increase in the NIH budget was appropriated in January, 1996, for the remainder of fiscal year 1996 thanks to the extraordinary efforts of Rep. John Porter (R-IL). Consequently, NIH was exempted from further problems with multiple continuing resolutions that plagued many other federal agencies. To the extent that cause and effect can be ascertained in the political process, APS and FASEB probably had an important influence on this good outcome.

In November, 1995, FASEB held a consensus conference to make recommendations for federal funding of biomedical research in fiscal year 1997. The conferees recommended a 6.5% increase in the NIH budget and a 12.1% increase in the NSF Biological Sciences Directorate budget. At the time of this writing (late May) the final budget resolution has not been passed, although its general outlines can be discerned based upon House and Senate action to date. The only definitive appropriations action thus far is that a House subcommittee has voted to provide a 4.7% increase for NSF Research and Related Activities — far less than the FASEB recommendation. Be prepared for wide swings in proposed budgets as election year politics crowds out common sense.

Rep. Porter, who is Chairman of the House Labor, Health and Human Services Appropriations Subcommittee, favors a 6.5% increase for NIH for fiscal year 1997. Harold Varmus, the NIH Director, favored a 6.5% increase in his professional judgment budget, but the administration's actual proposal for NIH was a 4% increase, of which $330 million is for construction of a new clinical center building on the NIH campus. The administration's proposal for NIH would also reduce the present annual 4% increase in individual grant budgets to 2% plus some other cuts so NIH can fund 6,827 new grants at the same time as putting aside a lump sum now to pay for the clinical center. Rep. Porter is said to favor a 6.5% increase plus an additional $330 million for the clinical center, but it is highly uncertain whether the money can be found. Letters and visits to your Representative and Senators emphasizing the importance of biomedical research to the nation's health and economy will be helpful.

A central policy of APS and FASEB has been the support of peer-reviewed, investigator-initiated research. This policy has been upheld in letters and testimony repeatedly in the past year, and was incorporated into the consensus conference report in the form of several specific recommendations.

Requests for Applications (RFAs) may be initiated by NIH in response to a Congressional directive or in response to an institute's desire to advance an area of science related to its mission. RFAs are often published with short response times, which greatly limits the applicant pool. The use of RFAs increased over the past decade from 5.7% of the NIH's budget in FY 1986 to 14.9% in FY 1995. In FY 1994, over 20% of the R01s were awarded in response to RFAs. At the same time, there has been a corresponding decline in the success rates of unsolicited investigator-initiated research grant applications.

At the consensus conference, FASEB recommended that NIH should greatly reduce the use of Requests for Applications. Instead NIH can indicate areas of special priority by issuing Program Announcements. These Program Announcements should remain in place for a minimum period of two years, and the resulting applications should be reviewed by regular study sections. By these mechanisms, new investigators will be attracted to the field identified by the Program Announcement and will have time to develop preliminary data required for a competitive application. The National Institute of Allergy and Infectious Diseases has recently begun using these policies, and it is hoped that this will soon be the case for all of NIH.

A fixed percentage of the NIH extramural budget is reserved by law for the Small Business Innovation Research (SBIR) set-aside program. Currently, NIH is required to award 2.0% of its extramural budget as SBIR grants. SBIR awards fund research projects with potential commercial applications. In FY 1995, the NIH budget for small business grants was $182.9 million. Rapid growth of the program in recent years, combined with the requirement that NIH must award these funds, has resulted in the funding of many proposals with poor priority scores. During FY 1991-FY 1993, NIH funded 28% of all SBIR applications. This was much higher than the success rates for new, unsolicited R01 applications, which declined from 20.3% to 15.4% during the same period. The mandated set-aside for the SBIR program is scheduled to increase from 2.0% to 2.5% of NIH's extramural research budget in FY 1997. APS and the FASEB consensus conference recommended that until questions about the merit of SBIR research supported by NIH are addressed, the SBIR share of NIH's research portfolio should be held at 2.0% and not be automatically increased to 2.5% in FY 1997. They further recommended that SBIR grants should be funded only when they receive priority scores that are the same or better than the cutoff priority scores for funding R01 grants. Chairman

Porter seemed sympathetic to these concerns during appropriations hearings earlier this spring, but the fate of these recommendations is uncertain at this time.

The Office of Management and Budget published a proposal last year to explore the possibility of placing the cost of research space in the direct cost category of NIH grants. This would mean that individual investigators would have to justify their space costs to study sections and bargain with the university administrators to rent space. FASEB held a consensus conference on Indirect Costs and opposed this idea. Our efforts were coordinated with the universities in the Federal Demonstration Project, who also opposed the idea. The proposal does not seem to be going forward, but the episode is a reminder of how much political effort is needed to defeat a silly idea.

The issue of federal oversight of research integrity is a continuing problem. The APS and FASEB strongly support the proposal by the National Academy of Sciences to define scientific misconduct as fabrication, falsification or plagiarism.

At the direction of Congress, the Department of Health and Human Services (DHHS) appointed a Commission on Research Integrity, headed by Kenneth Ryan, to suggest research integrity policy. The Ryan commission proposed a new definition of scientific misconduct as misappropriation [of intellectual property], misrepresentation [of data] and interference [with the research process]. These are inexact legal terms that will lead to suits between investigators and between investigators and institutions. The commission report was also flawed by not providing safeguards for the rights of scientists accused of misconduct.

The APS joined 49 other scientific societies in condemning the commission report. The next step is whether DHHS Secretary Donna Shalala will reject the commission's report.

The Public Affairs Committee is organized so that a question or problem may be raised by any member of the APS. We invite the membership to contact us by writing to the Public Affairs Office, Alice Hellerstein, at APS headquarters.

Eric O. Feigl, Chair

Publications Committee

In 1995, the Publications Committee continued to work toward the objectives of the strategic plan developed for publications by Council. The objectives are to maintain and promote excellence in the publications program, develop financial self-sufficiency for each journal, and explore electronic publication.

Maintain and Promote Excellence in the Publication Program

Revised Reviewing Form. The Committee developed a revised reviewing form in cooperation with the editors, which was put into use in 1995. The revised sheet was again reviewed at the editor's 1996 Spring Meeting after experience had been gained by its use by several editors: minor modifications were made.

Mandatory Submission Form. The Committee made several significant policy changes in 1995 that were implemented in 1996: *1)* a mandatory submission form must accompany submitted manuscripts; *2)* conflict of interest must be acknowledged by authors and will be noted in the accepted manuscript; *3)* all authors must sign upon submission of a manuscript; and *4)* the accepted for publication date will be the date that authors have met all the requirements for publication (i.e., supplied a disk for the final revised version and the required figures). The journals began publishing the Mandatory Submission Form in December 1995 issues, and they now appear in every issue. The forms were also widely disseminated to current authors with their galley proofs for their future use. Forms are also available through the Gopher (gopher.uth.tmc.edu.3300) and the World Wide Web (www.faseb.org/aps).

Policy changes. The Publications Committee approved two new requirements for submissions, which were added to the Information for Authors in June 1995: authors must authenticate cell lines, and authors cannot include original, unpublished data in Letters to the Editor.

Handbook for Editors. The Publications Manager developed the first section of the Handbook for Editors, which outlines the responsibilities of editors and associate editors regarding the review process, budgeting, invited material, and duplicate publication. The next section will outline procedures in the manuscript submission office and will be completed as soon as the procedures for the recent changes in submission requirements have been tested and formalized.

Honoraria. Editors and associate editors received honoraria checks for the first time. Editors and associate editors office reviewing expenses decreased in 1995 in spite of a 4% increase in manuscripts submitted.

Appointment of Editors. The Committee evaluated the *AJP: Regulatory, Integrative and Comparative Physiology* and the *AJP: Cell Physiology* before interviewing candidates for editorship; John Hall (January 1, 1996) and Kim Barrett (July 1, 1996) were chosen, respectively. The group also evaluated *Advances in Physiology Education*, *AJP: Heart and Circulatory Physiology* and the *Journal of Applied Physiology* before appointing Penny Hansen, Harris Granger, and John Remmers, respectively, to second three-year terms. The process includes asking the editor, associate editors, and appropriate Society Sec-

tion heads for their opinions on the journals as well as suggestions for improvement; their comments are passed on to the new editor.

EDITOR/ASSOCIATE EDITOR MEETINGS. The Publications and Production Manager attended three start-up meetings for newly appointed editors and their new associate editors (*AJP: Renal, Fluid, and Electrolyte Physiology, AJP: Regulatory, Integrative and Comparative Physiology,* and *Journal of Neurophysiology*). At these meetings the new editors discussed reviewing policies, administrative details, invited material, and new directions for their journals. The editor and associate editors for the *Journal of Applied Physiology* held a day-long meeting at EB '96; as well as discussing the above mentioned subjects, they were particularly concerned with the efficiency of the *Journal of Applied Physiology* electronic reviewing process under which manuscripts are sent out by File Transfer Protocol (FTP) to the associate editors for the assignment of reviewers and manuscripts are sent by the head office to reviewers. The editor of *Journal of Applied Physiology,* John Remmers, is planning to conduct an experiment by sending manuscripts via FTP to select members of his editorial board for review.

Financial Health of the APS Journals

SELF-SUFFICIENCY. Overall the financial health of the journals is very sound. The *Journal of Neurophysiology, Physiological Reviews,* and the *Journal of Applied Physiology* were financially self-sufficient in 1995. The consolidated and individual journals of the *AJP* suffered a small loss overall because of the payment of honoraria to editors and associate editors after the 1995 subscription prices had been set; the *News In Physiological Sciences* deficit decreased significantly. In 1995 the institutional price of the *American Journal of Physiology* consolidated was increased by 8% and the price of *Journal of Neurophysiology* by 10%. *Journal of Applied Physiology* and *Physiological Reviews* subscription prices were not increased. The 1995 individual *AJP* price increases were based on expected increases in pages. It was decided to increase rates for only four journals: *AJP: Cell Physiology*, 20%; *AJP: Endocrinology and Metabolism*, 6%; *AJP: Heart and Circulatory Physiology*, 11%; and *AJP: Regulatory, Integrative and Comparative Physiology,* 20%. The Society continues to keep member price increases at a minimum and continues to publish all accepted manuscripts without a page limit, which makes the budgetary process more difficult.

The *News In Physiological Sciences* institutional price was raised 12.5%; nonmember individual and IUPS-affiliated prices remained the same. Regrettably, except for *News In Physiological Sciences,* the number of subscriptions continued to decline. The *American Journal of Physiology* (consolidated), *Journal of Applied Physiology*, *Journal of Neurophysiology*, and *Physiological Reviews* experienced an overall decline of 2.5%, 3.1%, 2.0%, and 2.4%, respectively; the rate of loss, however, was less than last year. With the exception of *AJP: Regulatory, Integrative and Comparative Physiology* all the individual *AJP* journals experienced losses in subscriptions.

CHANGE IN PRINTER FOR THE *JOURNAL OF APPLIED PHYSIOLOGY*. The Publications Manager obtained bids from several printers to typeset, SGML tag, and print the *Journal of Applied Physiology* in 1996. Because of better rates and a history of providing good service in the printing of the *AJP*, Science Press was chosen as the printer for *Journal of Applied Physiology* in 1996.

PAGE CHARGES. Page charge income decreased by only 4% in 1995 in spite of a 7% decrease in research article pages because of the more stringent requirements for waivers. Ninety-four percent of authors paid page charges for the *American Journal of Physiology*, 91% for *Journal of Applied Physiology,* and 89% for *Journal of Neurophysiology*; there were 241 waivers granted out of a total of 3,415 articles.

REPRINT INCOME. Prices to authors were not increased in 1995. Net reprint income increased 4% in spite of an 8% decrease in pages published.

Electronic Publication of APS Journals

***APSTRACTS*.** The APS electronic journal, *APStracts,* was expanded to include abstracts of accepted articles for all the research journals and *Physiological Reviews*.

***JOURNAL OF APPLIED PHYSIOLOGY ONLINE*.** APS signed a contract with OCLC in 1995 for the provision of fully searchable text files for *Journal of Applied Physiology Online* for 1996 and two six-month archival CD-ROMs. Staff visited OCLC headquarters, met with Science Press, and held several in-house meetings to launch the project. However, OCLC was not able to fill the terms of the contract because of the difficulties they experienced with the acceptance by publishers of the proprietary Guideon software, the reluctance of participants to accept the expense of SGML tagging, and the results of a customer survey suggesting that potential users did not use full text searching and that searching by title, author, and abstract was sufficient for most researchers. OCLC has submitted a new proposal to the society that would include the *Journal of Applied Physiology* in a large database of journals and give subscribers the opportunity to view the J*ournal of Applied Physiology* via a PDF file (which has limited searchability but is much less costly to supply to OCLC). The subscriber would have the ability to search the title and authors of all the other journal in the data base. The subscriber would also have the option to view the full text of any of the other journal articles on a transactional fee basis. Arrangements have been made for OCLC to meet with APS to discuss this new proposal more thoroughly so that we can decide whether to continue working with OCLC or seek a new vendor. Executive Director Martin Frank expressed disappointment at our wasted efforts during the last few months and the delay caused by OCLC's action. The Society is currently obtaining

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Conflict of Interest Disclosure. All funding sources supporting the work and all institutional or corporate affiliations of mine are acknowledged. Except as disclosed on a separate attachment, I certify that I have no commercial associations (e.g., consultancies, stock ownership, equity interests, patent-licensing arrangements) that might pose a conflict of interest in connection with the submitted article (letter attached)

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American Journal of Physiology: _____ **Page 2**

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Please Refer to the Information For Authors in the June and December Issues for Submission Requirements

Please check the following items before sending

Manuscript typed double spaced including abstract, separate figure legends and references
Four copies of each manuscript and of all figures; two separate sets of original figures
Title of no more than 110 characters and spaces; running title of no more than 55 characters and spaces
An informative abstract of no more than 170 words; up to five keywords or expressions not included in the title
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new bids and reconsidering whether to continue its association with OCLC.

QUESTIONNAIRES. The APS took its booth to the Medical Library Association Meeting for the first time, where the Marketing Manager circulated a detailed questionnaire on library use of electronic publications; 300 useful responses were obtained.

Other Items of Significance

BOOKS. Three Handbooks and one History book have been published jointly by APS and Oxford University Press in the last 18 months as follows:

Aging (Editor, E.J. Masoro)
Environmental Physiology (Editors, M.J. Fregly and C. M. Blatteis)
Exercise: Regulation and Integration of Multiple Systems (Editors, L.B. Rowell and J.T. Shepherd)
August and Marie Krogh: Lives in Science, by Bodil Schmidt-Nielsen

ARTICLES PUBLISHED. The number of articles submitted to the research journals increased by almost 4% in 1995. The number of submitted manuscripts for the first four months of 1996 is down by 4% for the *American Journal of Physiology* and the *Journal of Applied Physiology*; however the *Journal of Neurophysiology* submissions are up 24% for the same period.

PAGES PUBLISHED. Total pages published for all the journals, including invited material, decreased by 8% because of staff shortages and severe winter weather that closed the APS and the printers offices several times. As a result a backlog of accepted manuscripts has developed that is being dealt with by the hiring of additional copyeditors and proofreaders and the utilization of printer's editing services. The department also expects that the new stricter submission and acceptance requirements will help to prevent delays in both the submission/reviewing process and the production process.

COLOR FIGURE SUBSIDY. At their Spring 1996 meeting the Publications Committee approved a proposal to provide subsidized color at $250 per figure for those figures requiring color for adequate dissemination of information (e.g., imaging data, etc.) Authors who do not pay page charges will not be allowed to take advantage of the subsidized price and will be charged the full cost of color figures (which currently averages approximately $650). The Council approved the subsidy, which will begin in January 1997.

NAME CHANGE FOR *AJP: RENAL, FLUID AND ELECTROLYTE PHYSIOLOGY*. The Council approved a name change for the Journal to *AJP: Renal Physiology*, to take effect in January 1997.

***AJP* CENTENNIAL 1998.** The Publications Committee established an ad hoc committee, chaired by John Williams, to celebrate the centennial of *American Journal of Physiology* in 1998. The committee has already sought input from editors and associate editors of the journal.; Their suggestions for celebrating the event have included a review of the founding and the early history, reprinting of the first issue, invited essays on each article in the first issue or on significant articles in the first 20-25 years, and special covers.

I wish to thank all those who have contributed to the quality and prestige of the APS journals: the editors and associate editors, editorial board members, guest referees, and the central office staff. I also wish to thank the Book Committees, who select the books APS publishes jointly with Oxford University Press, and recognize the hard work of the editors who monitor the books from start to finish.

Leonard R. Johnson, Chair

Section Advisory Committee

The Section Advisory Committee (SAC) met at EB'96. There were several agenda items that were discussed: *1)* increased financial support for the Distinguished Lecturer series; *2)* increased financial support from APS for the section allocation; *3)* possible renaming of the Water and Electrolyte Homeostasis Section; *4)* a slate of candidates for SAC Chairman; *5)* evaluation of the Distinguished Lecturerships, the Physiology InFocus Program, and programming for each section; and *6)* formulation of section handbooks.

The first issue related to the sections' desire for increased financial support for activities associated with the Distinguished Lectureship series. APS currently provides funds for the Distinguished Lecturers in the form of $1,000 honoraria and $2,000 for travel reimbursement. In addition, each section is allocated $1,000 to cover ancillary functions involving the Distinguished Lecturer. The sections feel strongly that the $1,000 is not sufficient to provide support for a breakfast or box luncheon for students and postdoctoral fellows or for cocktails and hors d'oeuvres at a poster

Section Advisory Committee. Front (l to r): Roger O'Neil, Gilbert Castro, Richard Traystman, Carl Gisolfi, Marian Walters, Cheryl Heesch. Back (l to r): Celia Sladek, Ian Reid, Allyn Mark, David Bruce, Larry Crawshaw.

session. The cost of these activities at hotels has been extremely expensive, and the $1,000 limit has meant a curtailment of what the sections have felt they could do for these activities. The sections requested an increase from $1,000 to $2,000 to enable the sections to schedule activities to enhance interactions between the Distinguished Lecturers and students and postdoctoral fellows. The sections feel that the Distinguished Lecturer series is an extremely important function of the sections, and most sections are confident that they can and will support one Distinguished Lecturer each year. For sections that do not support a Distinguished Lecturer each year, Council has approved the carry over of monies into the next year for use in the enhancement of the Distinguished Lecturer program.

Another issue relating to finances concerns the section allocation from APS. Each section receives an allocation from APS based on the number of primary and secondary members in the section. These funds have been earmarked solely for the purpose of keeping section members informed about sectional activities, e.g., mailings, newsletters, ballots, etc. The sections requested that they be allowed to make use of this money for functions related to the sections and to even be used to supplement the Distinguished Lecturer's activities such as annual dinners, cocktail hours, breakfasts, luncheons, etc. Because APS urges sections to spend all of these monies to keep their members better informed, APS has assumed the responsibility for sections expenses in these areas over the allocated amount. The sections expressed concern over the disparity of some sections overspending their allocation and others underspending and questioned whether the current system was working. The sections proposed that either APS could pay sections' expenses without earmarking funds for this purpose or should enforce the budgets and not allow sections to overspend their allocations.

Another major issue discussed was the proposed name change of the Water and Electrolyte Homeostasis Section to the Regulatory and Integrative Physiology Section. There was little support for this name among the other sections because of its broad nature. There was much discussion of the issue, which resulted in the suggestion of a potential name of Organ Systems Integration Section. This name will be brought back to the Water and Electrolyte Section Steering Committee to determine whether it would be acceptable.

The next issue dealt with the new SAC Chairman. A proposed slate of candidates was discussed, and a ballot will be sent to the section chairs shortly. The sections noted that they would like to be more involved in the SAC Chair selection process in the future, especially in helping to develop a slate of nominees and in having an opportunity to discuss the candidates goals if elected as Chair of SAC.

The sections were asked to evaluate the activities surrounding the EB'96 Distinguished Lectureship Program, including the lectures as well as the Lecturers themselves, poster discussions, breakfasts and luncheons with students and postdoctoral fellows, and any other activities. The section chairs were also asked to evaluate the Physiology InFocus Program and the overall program for each section at EB'96. The results of this survey will be presented at the next APS Council meeting.

The final issue that was discussed had to do with the formulation of "Section Handbooks" in which the specific procedures, including deadlines, are outlined for each section. For example, a handbook would include procedures and deadlines for naming the Distinguished Lecturers, for scheduling the various activities involving the Distinguished Lecturers, for electing section officers, etc. It would be nice for each section to develop their own handbook with the help of APS to be make sure that all pertinent information is included.

Overall, the SAC meeting was profitable. I feel that the suggestions of the sections are reasonable and can easily be met by Council.

On a personal note, it is a sad time for me because I have been Chairman of SAC (SAC Commander!) for three years and now it is time to move on. My tenure as Chairman of SAC worked well, and I enjoyed my interaction with the section chairs and with Council. It is a sad time because I do not like giving up a job that I enjoyed so much and found so rewarding. On the other hand. I am happy and satisfied that I leave SAC in good order with smooth running procedures for the next person. I will remain SAC Chairman until January 1997. My deepest thanks and appreciation to all of those section chairs with whom I have served.

Richard J. Traystman, Chair

Senior Physiologists Committee

A major responsibility of the Senior Physiologists Committee is to correspond with members of the American Physiological Society who are 70 years old or older. During the year, letters were sent to members on their 70th birthdays and cards were sent to those turning 80, each with a personal note and a request for a reply to be published in *The Physiologist*. Approximately 121 members were sent letters. In the past year, 44 responses to these letters have been received.

In addition, the members of the committee reviewed two applications for the G. Edgar Folk, Jr. awards. These awards are made to emeritus members 70 years or older for such purposes at attending a meeting, engaging in modest experiments, or completing a manuscript. Names of the awardees are not made public.

Suk Ki Hong, Chair

Committee Reports

Women in Physiology Committee

The purpose of the Women in Physiology Committee is to promote professional opportunities for women in the physiology discipline. To this end, the Committee administers several programs, including the APS Women in Physiology Mentoring Program, selection of the Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Awards for graduate students and postdoctoral fellows, and participation in selection of the annual FASEB Excellence in Science Award.

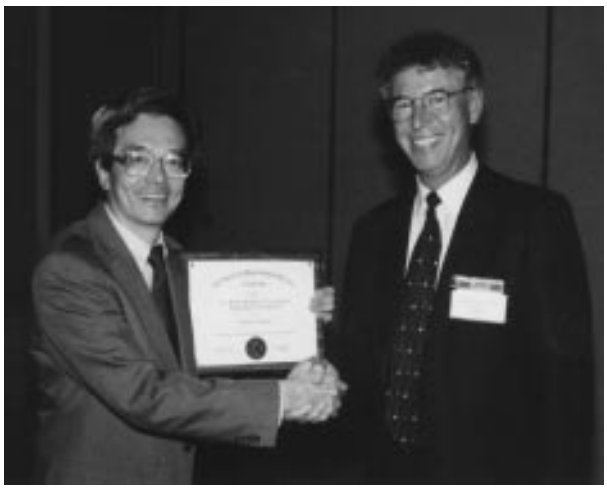
The Committee sponsored the fourth annual Mentoring Workshop and reception at the Experimental Biology '96 meeting in Washington, DC. Barbara Horwitz, Chair of Neurobiology, Physiology, and Behavior at the University of California at Davis, led a lively discussion on a variety of issues basic to career development for physiologists. Marsha Matyas, APS Education Officer, reported on the Women's Mentoring Program. Currently, there are 74 mentees in the program. They are able to choose their mentor from a list currently including 77 potential mentors. Forms were provided for individuals interested in participating as either mentee or mentor. Additional forms are available from the APS office. The Committee is evaluating the program, and comments from previous participants are proving very helpful in improving this growing program. The reception that followed the Mentoring Workshop provided an opportunity for mentors and mentees to meet and interact. The Workshop is open to anyone interested in participating in the program.

Twelve Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Awards were presented to recipients at the APS Business Meeting. The recipients were selected from 89 applicants. This award provides $500, complimentary registration for the Experimental Biology meeting, and a waiver of the placement service fees to male or female graduate students or postdoctoral fellows who present a contributed paper at the meeting.

APS members are encouraged to nominate outstanding women physiologists for the prestigious FASEB Excellence in Science Award. This year 16 outstanding applications were reviewed. Claude Klee of the National Institutes of Health was selected as the recipient of the Excellence in Science Award for 1997. In addition to presenting a plenary lecture at one of the FASEB meetings, the recipient receives an unrestricted research grant of $10,000 provided by Eli Lilly and Company. Interested members should contact the Chair of the Women in Physiology Committee for advice on preparing a competitive nomination packet.

Celia D. Sladek, Chair

Awards



1996 Walter B. Cannon Lecturer Richard W. Tsien and APS President Leonard Jefferson.

Henry Pickering Bowditch Lecturer Kim Barrett and APS Past President Brian Duling.

Ray G. Daggs Award

Ray G. Daggs was the APS Executive Secretary-Treasurer from 1956 until his retirement in 1972. In tribute to his devotion to the Society, the Ray G. Daggs Award was established, and is given annually to a physiologist for distinguished service to the Society and the science of physiology.

Leonard Jefferson was pleased to announce that the recipient of the 1996 Ray G. Daggs Award is **Franklyn G. Knox**, who served as the 59th APS President in 1986-1987.

Jefferson noted that in the APS Centennial chapter devoted to Frank Knox, it states that "the most recent twenty-five year history of APS began in 1963 with Hermann Rahn presiding at the anniversary meeting in Coral Gables, Florida, (and) it will come to a climax in 1987 at the Centennial Celebration at the FASEB Meeting in Washington, DC, with Frank Knox in the chair." At the time that Herman Rahn presided over the 75th anniversary meeting, Frank Knox was an MD/PhD student with Donald Rennie in Hermann Rahn's department at the State University of New York at Buffalo. Thus, the tradition of service to the APS started by Hermann Rahn was passed on to Frank Knox, who not only followed Rahn as one of the Society's presidents, but also followed Rahn as a recipient of the Daggs Award.

Knox was born in Rochester, New York, and completed all his professional education at the State University of New York at Buffalo, receiving his BS degree in pharmacy in 1959 and the MD degree and PhD degree in physiology in 1965. After completing his doctorates, he spent three years as a staff associate in the Laboratory of Kidney and Electrolyte Metabolism at NIH with Robert Berliner. In 1968, he joined the faculty of the University of Missouri as an assistant professor of physiology in the department of James O. Davis. In 1971, after first being promoted to Associate Professor at the University of Missouri, he became an associate professor of physiology and medicine at the Mayo Medical School at the time of its development. It was an exciting time for Knox because it provided him with an opportunity to develop a medical curriculum in an institution noted for its excellence in medicine. He served as the chair of the Department of Physiology & Biophysics from 1974 to 1983. In 1978, he was named Associate Director for Graduate Education: Research Training and Degree Programs, serving in that capacity until 1983. From 1983 to 1992 he served as Dean, Mayo Medical School and Director for Education, Mayo Foundation. Currently, Knox is Professor of Physiology and Medicine and Head, Nephrology Research Unit at Mayo.

Not only has Knox demonstrated exemplary service to the teaching and research missions of Mayo, he has also provided exemplary service to the APS. Elected to membership in 1969, Knox has played an active role in Society affairs in addition to being the APS President from 1986-1987. He was a member of the APS Council, Chair of the Committee on Committees, Chair of the Program Committee, Chair of the Finance Committee, Chair of the Renal Section, representative to the AAMC Council of Academic Societies, and a member of the Editorial Board of the *American Journal of Physiology*.

Knox has also served on the Boards and Councils of numerous other organizations devoted to the promotion of biomedical research and the education of the next generation of scientists. In addition, he served as the President of the Federation of American Societies for Experimental Biology from 1987-1988.

As President of the APS, Frank Knox carried physiology's message to the White House and Capital Hill, presenting the Society's Centennial medal to then Vice-President George Bush and to an aspiring President candidate, Senator Robert Dole. When presenting the medal to his Senator from Minnesota, Rudy Boschwitz, Knox thanked the Senator for his support of physiology and of biomedical research, only to be asked by Boschwitz, "What is physiology?" Obviously, Boschwitz's staff had not done their homework.

The 1996 Daggs Awardee, former APS President Franklyn Knox.

In his capacity as Past President, he extended the reach of the American Physiological Society by traveling to Moscow, Leningrad, and Tbilisi to sign a bilateral exchange agreement between the APS and the Pavlov's All-Union Physiological Society of the former Soviet Union. In so doing, he created opportunities for Soviet scientists to visit the United States and to develop the relationships that have supported them since the break-up of the Soviet Union.

In appreciation of Franklyn G. Knox's efforts to promote the Society and the discipline of physiology, both nationally

(continued on page 231)

Predoctoral Students Win Procter & Gamble Professional Opportunity Awards

1996 Procter & Gamble Professional Opportunity Awardees with Ted Logan and Joel Shulman of the Procter & Gamble Company

As a result of a generous contribution provided by the Procter & Gamble Company, the APS has been able to recognize the valuable contributions of predoctoral students to the science of physiology. Students apply for the Procter & Gamble Professional Opportunity Award through one of the 12 Sections of the Society, and selection of the awardees is made by the Sections. The number of awards each Section makes is based on the number of applications submitted to the Sections. Seventeen awardees were selected to attend Experimental Biology '96 in Washington, DC. Each awardee received $500, a certificate of recognition, and complimentary registration for the Experimental Biology meeting. They were presented their awards at the APS Business Meeting at EB'96. Also in attendance were Procter & Gamble staff members, Ted Logan and Joel Shulman. Awardees were:

Cardiovascular Section
Sean P. Didion, University of Nebraska Medical Center
Andrew Lange, Medical College of Wisconsin
Jon E. Mogford, Texas A&M University
Julie A. Rapps, University of Missouri, Columbia
David A. Tulis, Eastern Virginia Medical School

Cell & General Physiology Section
Carlos G. Vanoye, University of Texas Medical Branch at Galveston
Jennifer Wilson, University of Rochester Medical Center

Central Nervous System Section
Timothy O. Leonard, Pennsylvania State University College of Medicine

Comparative Physiology Section
Stephen T. Kinsey, Florida State University

Endocrinology & Metabolism Section
Brynn H. Jones, University of Tennessee

Environmental & Exercise Physiology Section
Pamela J. Mueller, Cornell University

Gastrointestinal Physiology Section
Carol A. Bertrand, Case Western Reserve University

Neural Control & Autonomic Regulation Section
Thanh Ngoc Doan, Rammelkamp Research Center

Renal Section
James D. Stockand, University of Texas Medical School, Houston

Respiration Section
Carolyn R. Hoyal, University of Southern California
Ann M. Sherry, University of Cincinnati College of Medicine

Water & Electrolyte Homeostasis Section
Craig F. Plato, Medical College of Wisconsin ❖

Ray G. Daggs Award

(continued from page 230)

and internationally, the Society is pleased to present him with the 1996 Ray G. Daggs Award. It is obvious that the Society and the discipline have been well served by his efforts.

In accepting the Ray G. Daggs Award, Knox stated, "this came as complete surprise, especially because if I had thoroughly read the Council agenda book I would have seen the announcement. To be linked with Ray Daggs' name and to see his name going forward in perpetuity is of great significance to me. It is a real honor to be recognized for service when it was an honor to serve."❖

Moving?
If you have moved or changed your phone, fax, or e-mail address, please notify the APS Membership Office at 301-530-7174 or fax to 301-571-8305.

NIDDK Minority Fellows Attend Experimental Biology '96

1996 NIDDK Minority Travel Fellows

The APS, with support from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), awarded travel fellowships to 33 minority students and postdoctoral fellows to attend Experimental Biology '96 in Washington, DC. The APS/NIDDK program, which has been in existence since 1987, provides awardees with reimbursement for transportation, meals, and lodging. Each Fellow is assigned to an individual APS member mentor who guides the Fellow through the meeting and introduces him/her to leading scientists. The culmination of the Fellows' participation is a closing luncheon to review the week's scientific activities and to hear an APS member discuss his/her career. At the 1996 luncheon, Sarah Gray, University of California-Davis School of Medicine, provided Fellows with an overview of suggestions for successful work at the graduate and professional levels.

1996 Spring Meeting Awardees:

Saint K. Adeogba, New Mexico State University
Inez Archuleta, New Mexico State University
Patricia Avila Arreola, New Mexico State University
Rachel M. Bailon, California State University, Los Angeles
Amadou Camara, Medical College of Wisconsin
Robert Anthony Chavez, University of Arizona College of Medicine
Virginia G. Corpus, Univ. of New Mexico School of Medicine
Vianey Roselle DeAguero, New Mexico State University
Christopher A. DeSouza, University of Colorado
Danita Eatman, Wright State University
Maria Florez-Duquet, University of California, Davis
Raymond Foust III, Temple University School of Medicine
Annette M. Gabaldon, University of California, Davis
Murrell Godfrey, Tulane University School of Medicine
Cathy J. Greene, Medical College of Georgia
Gerald M. Herrera, Univ. of New Mexico School of Medicine
Minnie Q. Holmes-McNary, University of North Carolina, Chapel Hill
Karen F. Johnson, University of South Florida
Joyce J. Jones, University of Missouri, Columbia
Elia V. Leos, University of Texas at San Antonio
Jose Lopez, Ponce School of Medicine
Rosalinda Martin, California State University, Los Angeles
Danilo Vittorio Mazzella, Indiana University
Ronald K. McMillon, University of South Alabama
Kawonia P. Mull, Meharry Medical College
Christopher Nunez, Columbia University
Alejandro Ortiz, University of California, Davis
Andrea L. Ortiz, New Mexico State University
Suzette Y. Osei, Montefiore Medical Center
Erika S. Piedras-Renteria, University of Illinois
Victor Ramon Rodriguez, University of Texas at San Antonio
Angelica S. Vrablic, University of North Carolina, Chapel Hill
Matthew Walker III, Tulane University School of Medicine ❖

Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Awards

Approximately 90 graduate students and postdoctoral fellows submitted applications for the 1996 Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Awards. The APS Women in Physiology Committee selected 12 awardees who attended Experimental Biology '96 in Washington, DC. Applicants were chosen based on two criteria: the quality of their abstracts and the content of letters written by the applicants that explained their goals, research, and why they were particularly deserving of the award. Each awardee received $500, a certificate of recognition, complimentary registration for the EB'96 meeting, and a waiver of placement service fees. Awards were presented during the APS Business Meeting at EB'96 by the Chair of the Women in Physiology Committe, Celia D. Sladek.

1996 Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Awardees with Women in Physiology Committee Chair Celia Sladek.

Awardees were:

Ann T. Eakes, University of Texas Health Science Center, San Antonio

Pauline L. Entin, Cornell University

Allison A. Hegarty, University of Iowa College of Medicine

Eric J. Kunkel, University of Virginia

Lee Anne McLean, University of California, Davis

Hiroshi Murakami, University of Nebraska Medical Center

Michael F. Romero, Yale University School of Medicine

Erin L. Seifer, McGill University

Stanislav I. Svetlov, University of Texas Health Science Center at San Antonio

Charles R. White, Loma Linda University School of Medicine

Yong Xia, Johns Hopkins University Asthma & Allergy Center

Ying Zhao, University of Cincinnati ❖

Hoechst Marion Roussel Excellence in Renal Research Awards

Each year at the Experimental Biology meeting the Renal Section recognizes outstanding achievement by students and postdoctoral fellows through the Hoechst Marion Roussel Excellence in Renal Research Awards. The purpose of these awards is to encourage students and postdoctoral fellows to continue their careers in renal physiology and to recognize outstanding research. The awards are judged on the basis of both the abstracts and the presentations.

This year's winners in the student category were **James Stockand** (sponsor Steven Sansom) and **Deanna Denault** (sponsor Aniko Naray-Fejes-Toth). The winners in the postdoctoral category were **Larry Coury** (sponsor Mark Zeidel), **Li-Xian Zou** (sponsor L. Gabriel Navar) and **Hong Yu** (sponsor Oscar Carretero). The Renal Section congratulates the winners on a job well done and gratefully acknowledges the support of Hoechst Marion Roussel for their support of these awards. ❖

From left to right: Gary Doucette, representative of HMR; Larry Coury; James Stockand; Li-Xian Zou; Joan Keiser, Award Committee Co-chair; and Jeff Garvin, Award Committee Chair. Not present were Deanna Denault and Hong Yu.

Please notify APS Membership of any change in your status as soon as possible. The change will be printed in the next available issue of *The Physiologist* and entered in our member records.

Society Awards

Henry Pickering Bowditch Lecture Award

The annual Bowditch Lecture honoring the first elected President of the American Physiological Society, Henry Pickering Bowditch, has been given at the annual meeting since 1956. The first Bowditch Lecture, "Role of the Red Blood Corpuscles in the Regulation of Renal Blood Flow and Glomular Filtration Rate," was presented by John R. Pappenheimer.

The lecturer is selected by the President with the consent of Council from among the regular members who have achieved outstanding work and are under 40 years of age at the time of presentation. The award is for original and outstanding accomplishments in the field of physiology. Originality of approach, clarity of data presentation, and the general significance of the results are important criteria. The award conveys an honorarium of $2,500 plus travel and per diem expenses to attend the spring meeting, and the recipient is invited to submit a manuscript for publication in one of the Society's journals.

Nominations should be accompanied by letters from two nominators describing the importance of the candidate's work, a brief sketch of the nominee's professional history, papers or manuscripts that substantiate the excellence of the candidate, and a curriculum vitae. The nominators should clearly state the contributions of candidates to any jointly authored manuscripts and papers, documenting the independence of the nominee's work. Nominations should be submitted by October 1 to: The APS Bowditch Lecture Award, 9650 Rockville Pike, Bethesda, MD 20814-3991.

Physiology in Perspective: Walter B. Cannon Memorial Lecture Award

The Cannon Memorial Lecture honors Walter B. Cannon, President of the Society from 1913-1916 and one of the century's most distinguished physiologists. The plenary lecture is presented annually by a distinguished physiologic scientist, domestic or foreign, at the spring meeting on a subject that addresses some aspect of the concept of homeostasis as enunciated in Cannon's classic work, *The Wisdom of the Body*. The lecture, sponsored by the Grass Foundation, is selected by the APS President with the consent of Council.

The recipient receives an honorarium of $4,000 plus travel and per diem expenses and is invited to submit a manuscript for consideration of publication in one of the Society's journals.

Nominations for the Cannon Lecture Award should be adequately documented to demonstrate the candidate's contributions to physiology. A curriculum vitae should accompany the letter of support describing the nominee's achievements. Submit nominations by October 1 to: The APS Cannon Lecture Award, 9650 Rockville Pike, Bethesda, MD 20814-3991.

Ray G. Daggs Award

This annual award is presented to a physiologist who is judged to have provided distinguished service to the science of physiology and the The American Physiological Society.

The recipient receives an honorarium of $500, a plaque, and expenses to participate in the Experimental Biology meeting. The Award is presented at the spring busines meeting of the Society.

Orr E. Reynolds History Award

The Orr E. Reynolds Award is given annually by the American Physiological Society for the best historical article submitted by a member of the Society.

Articles may deal with any aspect of the history of physiology, including the development of physiological ideas and their application, instrumentation, individual and collective biography, departmental and institutional history, history of societies including APS, and physiology in its public context. Manuscripts submitted for the award should represent original research and be adequately documented. Articles published in APS journals or books during the prior calendar year are also eligible for the award upon request by the author(s). The award is open to all classes of APS membership except for those members who have advanced degrees in the history of science and medicine. A member may receive the award only once.

The awardee will receive $500 plus expenses to attend the annual spring Experimental Biology meeting. If the awardee wishes, and there is a suitable place on the program, an oral presentation will be made at the Experimental Biology meeting or a subsequent conference at the beginning or an appropriate scientific session. It is hoped that, after appropriate peer review, the article will be published in one of the APS journals.

Manuscripts will be evaluated by a committee consisting of three members of APS appointed annually by Council in consultation with the chair of the History of Physiology Group. At least one member will be a professional historian.

Manuscripts should be typed and double spaced with wide margins on 8.5 x 11 paper and should conform to the style used in APS journals. (Instructions will be sent on request.) Three copies should be submitted for use of the

review committee. Manuscripts should be sent to the Orr E. Reynolds Award, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991, by December 1. The recipient of the award will be announced at the Experimental Biology Business Meeting.

Research Career Enhancement Awards

The APS Career Enhancement Awards are designed to enhance the career potential of APS members. The awards will provide up to $4,000 to allow individuals in the early phases of their careers to obtain special training and in the later phases of their careers to develop new skills and to retrain in areas of developing interests.

The awards can be used to support short-term visits to other laboratories to acquire new specific skills and to support attendance at special courses devoted primarily to methodologies appropriate for both new investigators and more senior investigators entering a new field of research.

Members in good standing interested in applying should submit an application form including a curriculum vitae, justification for requesting an award, description of enhancement activity and current research program, and anticipated budget for the proposed program of enhancement. The applicant must also include a letter of support either from his/her department chair, laboratory host, or other appropriate individual.

Giles F. Filley Memorial Awards for Excellence in Respiratory Physiology and Medicine

The Giles F. Filley Memorial Fund was established in 1993 to recognize excellence in respiratory physiology and medicine. The awards are made to investigators who hold an academic rank no higher than assistant professor and are pursuing research in respiratory physiology and medicine. Each award will be for approximately $12,000 and is designated for the use of the awardee in his/her research program. Awards do not include any indirect cost reimbursement.

Awards will be made annually to individuals demonstrating outstanding promise based on his/her research program in respiratory physiology and medicine. Applications will be accepted from members of the APS working within the United States, reflecting Giles F. Filley's contributions to the national research community through his membership in the American Physiological Society. Because of Giles F. Filley's long association with the University of Colorado, Denver, preference for one award, on a competitive basis, will be given to individuals affiliated with that institution.

The awards will be announced during the APS Business Meeting held at the Experimental Biology meeting and at the Respiration Section dinner. The recipients receive reimbursement for their expenses to attend the meeting and a plaque recognizing their designation at Giles F. Filley Awardees. The awardees are selected by a committee composed of members of the APS Respiration Section.

Caroline tum suden/ Francis A. Hellebrandt Professional Opportunity Awards

The APS Caroline tum Suden Professional Opportunity Awards ($500, complimentary registration, and placement service fees) are granted to as many as 12 graduate students or postdoctoral fellows who present a contributed paper at the Experimental Biology meeting. Candidates must be the first author of an abstract submitted to APS. An accompanying letter, signed by the sponsor of the abstract, must contain *1)* certification that the author is a student or postdoctoral fellow and *2)* the approximate date the nominee will be available for employment. Awardees are notified by the Selection Committee prior to February 15 and presented with their awards during the APS Business Meeting.

G. Edgar Folk, Jr., Senior Physiologist Award

The G. Edgar Folk, Jr., Senior Physiologist Fund has been set up through the generosity of family and former graduate students and postdoctoral fellows to provide modest but helpful assistance to senior physiologists, 70 years or older, who no longer have grant funds available to them. The awards, in the amount of $500, might be used for such purposes as attending an APS meeting to present a paper, engaging in a series of modest experiments, or completing a manuscript (paying for typists or perhaps page charges). Recipients will be selected with the assistance of the Senior Physiologists Committee throughout the year. Names of awardees will not be made public. Mary Folk writes that the purpose of the fund is for the Senior Physiologists Committee "to have fun assisting colleagues and for Emeritus APS members to keep in closer touch with APS."

William T. Porter Fellowship Awards

This award is designed to support the training of talented students entering a career in physiology and to provide predoctoral fellowships for minority students, postdoctoral fellowships, and limited sabbatical leave aid for faculty members of predominantly black schools who wish to update their expertise in physiology. In addition, funds have been made available to lectureships and laboratory equipment to develop teaching consortia linking pre-

dominantly black colleges with medical schools in the same area. summer research fellowships are also awarded for minority undergraduate opportunities for physiological research.

The recipients receive basic stipends, and an institutional allowance is given to the training department or laboratory where the recipient will work.

NIDDK Travel Fellowships for Minority Physiologists

NIDDK Travel Fellowships for Minority Physiologists are open to advanced undergraduate, predoctoral, and postdoctoral scientists who have obtained their undergraduate education in Minority Biomedical Research Programs and MARC-eligible institutions, as well as students in the APS Porter Development Program. Applications may also be submitted by minority faculty members at the above institutions. Funds will provide transportation, meals, and lodging to attend the annual spring Experimental Biology meeting. The specific intent of this award is to increase participation of the pre- and postdoctoral minority students in physiological sciences. Applicants need not be members of the APS but should be US citizens or hold permanent resident visas. Applications should include *1)* information on academic background and experience; *2)* a written statement of interest in research in physiology; *3)* a letter of recommendation from the applicant's mentor; *4)* a list of publications, if available; *5)* a statement indicating the underrepresented minority (Black, Hispanic, American Indian, etc.) with which the applicant identifies himself/herself; and *6)* an estimate of required travel and per diem expenses. The deadline for receipt of completed applications is December 8.

John F. Perkins, Jr., Memorial Fellowships

The American Physiological Society invites applications for the John F. Perkins, Jr., Memorial Fellowships. The Perkins Fellowships are designed primarily to provide supplementary support to foreign physiologists who have already arranged for fellowships or sabbatical leave to carry on scientific work in the United States.

The supplementary support is intended to help foreign scientists bring their families to the United States and thus enable them to take fullest advantage of other cultural benefits inherent in international exchange. Preference will be given to physiologists working in the fields of respiratory physiology, neurophysiology, and temperature regulation. Applications from scientists in developing countries will also be given special attention.

Application should be made by both the visiting scientist and his/her host. To qualify, the host must be a member of the American Physiological Society. The application should contain an account of these arrangements with a brief description of the proposed scientific work and an account of how visitors and their families intend to make use of cultural opportunities during their stay. Deadlines for receipt of applications are May 1 and November 1. Applications may be obtained from the Executive Director, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991, USA.

APS Conference Student Awards

To encourage the participation of young scientists in training, awards are granted, for outstanding abstract presentation, to graduate students who present a contributed paper at any of the APS Conferences.

The recipients will receive a $500 award and complimentary registration.

The recipients must be the first author of an abstract submitted for presentation at an APS Conference and must check the box on the abstract page indicating a desire to be considered for the award. The sponsor of the abstract must also certify the student status of the candidate.

Section Awards

Distinguished Lectureship Awards

The twelve Distinguished Lectureship Awards are named after outstanding contributors to the disciplinary areas of physiology. The recipient is chosen by the Section as a representative of the best within the discipline. The annual lecture is presented at the Experimental Biology meeting.

Each recipient receives an honorarium of $1,000 and up to $2,000 to cover travel expenses.

The twelve named Lectureships are:

Robert M. Berne Distinguished Lectureship of the APS Cardiovascular Section

Hugh Davson Distinguished Lectureship of the APS Cell and General Physiology Section

Joseph Erlanger Distinguished Lectureship of the APS Central Nervous System Section

August Krogh Distinguished Lectureship of the APS Comparative Physiology Section

Solomon A. Berson Distinguished Lectureship of the APS Endocrinology and Metabolism Section

Edward A. Adolph Distinguished Lectureship of the APS Environmental and Exercise Physiology Section
Horace W. Davenport Distinguished Lectureship of the APS Gastrointestinal Physiology Section
Carl Ludwig Distinguished Lectureship of the APS Neural Control and Autonomic Regulation Section
Carl W. Gottschalk Distinguished Lectureship of the APS Renal Physiology Section
Julius H. Comroe, Jr., Distinguished Lectureship of the APS Respiration Section
Claude Bernard Distinguished Lectureship of the APS Teaching of Physiology Section
Ernest H. Starling Distinguished Lectureship of the APS Water and Electrolyte Homeostasis Section.

Procter & Gamble Professional Opportunity Awards

The Procter & Gamble Professional Opportunity Awards (providing $500 and complimentary registration for the spring Experimental Biology meeting) are granted to at least 17 predoctoral students who present a contributed paper at the meeting. Candidates must be the first author of an abstract submitted to APS and within 12-18 months of completing his/her PhD degree. All recipients must be US citizens or hold a permanent resident visa. An accompanying letter, signed by the sponsor of the abstract, must contain *1)* certification that the author is a predoctoral student and *2)* the approximate date of degree completion. Awardees will be notified before February 15. Awardees are selected by the following sections of APS: Cardiovascular, Cell & General Physiology, Comparative Physiology, Endocrinology & Metabolism, Environmental & Exercise Physiology, Gastrointestinal Physiology, Central Nervous System, Neural Control & Autonomic Regulation, Renal Physiology, Respiratory Physiology, Teaching of Physiology, and Water & Electrolyte Homeostasis.

Cardiovascular

The Cardiovascular Section presents two annual awards: the Lamport Award and the Carl J. Wiggers Award.

The Lamport Award is presented to a young investigator under the age of 36 showing outstanding promise in his/her field of cardiovascular research. The recipient, who receives a certificate and a $200 check, is selected by a committee. The Carl J. Wiggers Award honors a founder of the section and is presented to a scientist who has made outstanding and lasting contributions to cardiovascular research. The selection is made by the Cardiovascular Section Steering Committee.

Central Nervous System

The Van Harrevold Memorial Award ($250) is presented by the Central Nervous System Section to recognize outstanding research in neuroscience by a graduate student or postdoctoral fellow. The recipient must be first author on an abstract presented at the Experimental Biology meeting.

Comparative Physiology

The Comparative Physiology Section Scholander Award is presented annually to recognize an outstanding young investigator presenting a paper as first author in a designated comparative physiology slide session or poster session at the Experimental Biology meeting or the Comparative Physiology Intersociety fall meeting. Candidates must be graduate students or postdoctoral fellows, not more than five years beyond their highest degrees. The recipient receives a cash award or prize and a certificate.

Environmental and Exercise Physiology

The Environmental and Exercise Physiology Section presents two annual awards. The Young Investigator Award ($150) is for the recognition of excellence in research by a graduate student. The Honor Award ($200) is given to a member of the section who has had a lifetime of outstanding research. Candidates must be first author on a paper presented at a previous APS meeting. Honoring Harwood S. Beling, the awards are presented at the section dinner.

Gastrointestinal Physiology

The Gastrointestinal Physiology Section Student Prize is designed to challenge and reward students and postdoctoral fellows who are conducting their research efforts in gastrointestinal physiology. Two Awards—one for work done while enrolled as a student for a doctoral degree and the other for work performed during the first through third postdoctoral years—are presented at the spring Experimental Biology meeting. Applicants must be first author on abstracts submitted for the Experimental Biology meeting, which are accompanied by a letter from the applicant's advisor indicating whether the applicant is a graduate student or postdoctoral fellow. Each award consists of a certificate and $300. The Steering Committee chooses a senior physiologist as the recipient of the Smith,Kline and French Prize in Gastrointestinal Physiology. The awardee receives $500 and presents a lecture at the Section's annual banquet.

Neural Control and Autonomic Regulation

The Michael J. Brody Young Investigator Award is intended to recognize promising young investigator who has

made a significant contribution through his/her research to our understanding of neural control and autonomic regulation. The Award is sponsored jointly by Merck & Co., Inc. and the Neural Control and Autonomic Regulation Section and consists of a certificate and $500. The award is open to graduate students (post-candidacy exams), postdoctoral fellows, and clinical fellows who will attend the Experimental Biology meeting as first author of an abstract. The applicant or sponsor must be a member of the APS.

Renal Physiology

The Renal Physiology Section Award for Excellence in Renal Research is to promote and develop excellence in research related to molecular, cellular, and organ mechanisms expressed by the kidneys. Annual awards are presented to a graduate and postdoctoral student, with judging based on abstract submission (25%) and meeting presentation (75%). Papers are evaluated by three judges in renal hemodynamics, epithelial transport, and metabolism. A certificate and prize of $200 are presented to the recipients at the annual renal dinner.

Teaching of Physiology

The Teaching of Physiology Section sponsors the Arthur C. Guyton Physiology Teacher of the Year Award. The award is sponsored by the W. B. Saunders Company. Nominees must be full-time faculty members of accredited colleges or universities and members of the APS. They must be involved in classroom teaching and not exclusively teaching graduate students in a research laboratory. Each nominee must be nominated by a member of APS. The nominator is responsible for completing application materials and forwarding three copies to the chairperson of the Award Selection Committee. The deadline for receipt of applications is November 30.

The person selected will receive the award at the banquet of the Teaching of Physiology Section at the spring Experimental Biology meeting. The Teacher of the Year will receive a certificate, an honorarium of $1,000, and expenses of up to $750 to attend the meeting.

Water and Electrolyte Homeostasis

The Young Investigator Award in Regulatory and Integrative Physiology was established to encourage young investigators to continue research careers in cardiovascular, renal, and neuroendocrine integration. The award will be presented annually at the business luncheon of the Water and Electrolyte Homeostasis Section to a young investigator (less than 40 years old) who has made important contributions to our understanding of the integrative aspects of cardiovascular, renal, and neuroendocrine physiology in health and/or disease. The award will consist of $500, a plaque, and free registration to the annual Experimental Biology meeting. The recipient of the award will also be invited to present a short lecture on his/her research work during one of the scientific sessions of the Experimental Biology meeting.

Any member of the APS in good standing may apply to be nominated for the award. Applications will be reviewed by the Awards Committee of the Water and Electrolyte Homeostasis Section and should include a curriculum vitae of the nominee, a brief (one-page) summary and analysis of the research contributions of the nominee, a complete list of publications, and two letters of nomination from members of the APS.

The nomination and supporting documents must be received no later than December 1. ❖

IUPS Travel Grant Program

The US National Committee for the International Union of Physiological Sciences is seeking applications for travel awards for the XXXIII IUPS Congress in St. Petersburg June 30-July 5, 1997.

The Committee will screen the applications, and the awards will be made by APS, which is raising funds for the travel. The travel awards will be approximately $800 to help cover the majority of the airfare to St. Petersburg.

The awards are intended for individuals who have no other source of funds to attend the Congress. Federal employees are eligible. It is anticipated that more applications will be received than can be funded. To achieve as high a rank as possible, the following factors should be considered:

• Complete all questions on the application.

• Provide copies of letters of invitation if you have been invited to the Congress to make a presentation.

• Provide an indication of participation in the Congress, including presentations and attendance for most or all sessions.

• Have travel plans that include other professional visits or work.

The deadline for submissions of applications for travel awards is November 1, 1996. The application is on the following page. All applicants must submit **six** copies of the application to USNC/IUPS, National Academy of Sciences, Attn: Robin Schoen, 2101 Constitution Avenue NW, Washington, DC 20418.

(See next page for application) ❖

Surname _____

XXXIII IUPS Congress Travel Grant Program
St.Petersburg, Russia
June 30-July 5, 1997

1. Name and Degree: Year of highest degree:
2. Faculty position or employment title: Year of Birth:
3. Address:

4. Phone Number: Fax Number:
5. Email Address:
6. Country of citizenship: Visa status if not US citizen:
7. Underrepresented Minority Applicants: Please circle ethnic group to which you belong:
   African American Hispanic Native American Pacific Islander
8a. Gender: Male Female 8b. Do you need special assistance or accommodations?
9. Attending entire Congress? Yes No If not, which days will you attend?
   Will you present an invited paper or poster at the Congress? Yes No
   If so, please indicate the sessions you will address. If invited, attach letter of invitation.
   Invited to give public lecture (give title):

   Invited to Congress symposium (give title; indicate chairman):

10. Do you intend to submit a poster? (If yes, please give title):

11. Please describe your area of specialty (e.g. cell physiology, cardiovascular physiology, neurophysiology, etc.):

12. Member of: APS SGP Div .Comp. Physiol. & Biochem., ASZ Soc. Neurosci.
    BMES Microcirc. Soc. Other
13. Are you employed by the federal government more than half-time? Yes No
14. Travel: a. City of departure b. Support requested
    c. Amount of other support available (excluding personal)
15. Recent publications (not more than 5 titles, giving full refs). If listing abstracts or manuscripts in press, please indicate.

Surname _____

16. Anticipated abstract (Not more than 250 words on paper or poster you plan to present at the Congress, including names of author and coauthors and indicate presenter. If none, abstract of current work.)

17. Give a brief resume of the scientific purposes and goals of your trip in addition to attending the Congress, including other meetings, satellite symposia, laboratories you plan to visit, work on collaborations, etc.

International Joint Meeting of Physiology

Sociedad Española de Ciencias Fisiologicas
(XXVIII Congreso Nacional)
and The American Physiological Society

The International Joint Meeting of the Sociedad Española de Ciencias Fisiologicas (SECF) and The American Physiological Society (APS) will be held from February 4 to 7, 1997 in Malaga, Spain. This meeting will contribute to a closer relationship between Spanish and American physiologists and facilitate future collaboration between them. The joint meeting coincides with the 28th National Congress of the SECF.

Preliminary Scientific Program

The scientific program will include three plenary lectures, eleven symposia, poster sessions, and oral communications. The official language of the meeting is English.

Topics to be considered are:

- Epithelial and Membrane Transport
- Autonomic Function
- Cardiovascular Control
- Respiratory Integration
- Endocrine Function
- Hormonal Receptors
- Renal Function
- Metabolism and Nutrition
- Aging Physiology
- Exercise Physiology
- Thermogenesis and Thermoregulation
- Plasticity and Regeneration in the Nervous System
- Brain Imaging and Mapping
- Comparative Physiology
- Mathematical Modeling of Physiological Systems
- Teaching in Physiology

Plenary Lectures:

J.A. Schafer, University of Alabama, US
K. Schmidt-Nielsen, Duke University, US
P. Roland, Karolinska Institutet, Sweden

Location

The meeting will be held in Benalmadena, a picturesque coastal village in the Costa del Sol. Benalmadena is very close to Malaga City and is easily accessible by air, road, and train. There are many comfortable hotels and the weather is warm and sunny (70-80°F). Benalmadena's attractions include beautiful Andalucian architecture, panoramic mountain and coastal scenery, cultural and sports centers, golf courses, casinos, and nightclubs. Social programs and tourist trips will be in operation during the meeting.

Dr _____ Mr./Mrs. _____ Name _____

Institution _____

Mailing Address _____

City _____ State _____ Postal Code _____

Phone _____ Fax _____ E-mail _____

Number of Accompanying Persons _____

_____ I wish to receive further information
_____ I intend to attend the meeting
_____ I intend to make a presentation:
_____ Oral _____ Poster

Departamento de Fisiologica, Facultad de Medicina
29080 Malaga, Spain
Tel: 34-5-213-1577; fax: 34-5-213-1650
E-mail: bueno@ccuma.uma.es

Physiology and Experimental Biology ‘96

Experimental Biology ‘96 was held April 14-17 in Washington, DC and was a joint meeting of four FASEB societies (APS, ASPET, AIN, and AAA) and five guest societies. EB‘96 was organized around seven themes: cardiovascular biology; epithelial cell biology; metabolic processes in health and disease; neurobiology, regulation of growth and development, respiratory biology, and signal transduction.

A total of 4,783 volunteered abstracts were submitted. Of this total, 2,354 papers or 49% were received from the APS Membership and its four guest societies: Biomedical Engineering Society, Society of Experimental Biology and Medicine, North American Society of Biorheology, and The American Society for Investigative Pathology. Details about abstract submission for each of the themes is included in Table 1. Of the 4,768 total abstracts programmed, over one-half (2,580 or 54%) were incorporated into themes; the remaining abstracts (2,188 or 46%) were presented under the auspices of the sponsoring societies. Of the 2,354 abstracts submitted to the APS for programming, two-thirds (1,498 or 64%) were presented as part of themes, whereas the other third (856 or 36%) was presented as part of a societal program.

Of the 2,354 abstracts processed by APS, 19% (457) were presented by female scientists as first authors and 11% (268) were received from institutions outside of The Americas. Government laboratories represented 5% (111) of the abstracts received, and industry laboratories represented 2% (47). Table 2 provides information on the departmental affiliations of the first authors and indicates that 22.0% (517) were received from departments of physiology and 4.2% (100) from departments of physiology and biophysics.

The APS scheduled the abstracts it was responsible for programming into 212 total sessions: 115 poster, 38 slide, 35 symposium, 14 lectures, 1 minisymposium, 4 workshops, and 4 poster-discussion sessions. The lecture sessions include 12 Section Distinguished Lectureships, and the Cannon and Bowditch Lectures. The Section Distinguished Lectureships served as the focal point for the programs of each of the sections and were complemented by special sessions related to the lecture and designed to encourage interactions between students and fellows and the Distinguished Lecturer.

The total meeting registration was 10,099 which represents a decrease of 17% from EB‘95 in Atlanta, Georgia where six societies met. The total registration includes 7,446 scientific, 1,930 exhibitors, and 723 “other” registrants. ❖

Table 1. EB‘96 Abstracts by Theme and Society

	APS	ASPET	AIN	AAA	Total
Total Abstracts Received	2,354	896	1,401	132	4,783
Theme Name					
Cardiovascular Biology	850	169	65	7	1,091
Epithelial Cell Biology	129	24	10	9	172
Metabolic Proces/Hlth & Dis	114	21	402	1	538
Neurobiology	87	53	53	11	204
Reg of Growth & Develop	41	25	128	8	202
Respiratory Biology	227	27	8	1	263
Signal Transduction	50	42	16	2	110
Total Abstracts per Theme	1,498	361	682	39	2,580
% to Themes of Total Received by Society	64%	40%	49%	30%	54%

Table 2. Author Affiliations of Programmed Volunteered Papers

Department	Number of Papers	%Total
Physiology	517	22.0%
Physiology and Biophysics	100	4.2%
Anesthesiology	109	4.6%
Medicine	101	4.3%
Pharmacology	96	4.0%
Surgery	94	4.0%
Biology	79	3.4%
Biomedical Engineering	48	2.0%
Pediatrics	46	2.0%
Biochemistry	26	1.1%
Exercise/Sport Science	17	0.7%

Experimental Biology '97

April 6-9 • New Orleans, Louisiana

Physiology InFocus

Cell Signaling: Multiple Pathways, Integration and Crosstalk

Organized by: **William W. Chin**

Sunday, April 6, 1997, 2:00–5:00 PM
APS Past-President's Symposium: Molecular Physiology of Obesity
Jeffrey M. Friedman and Leonard S. Jefferson

Monday, April 7, 1997, 8:30–11:30 AM
Integration of Signal Transduction in Hormone Action via Nuclear Receptors
Benita Katzenellenbogen

Monday, April 7, 2:00–5:00 PM
Growth Factors, Receptors and Cross Talk
C. Ronald Kahn

Tuesday, April 8, 1997, 8:30–11:30 AM
Nuclear Receptors, Cross Talk and the Brain
Donald W. Pfaff

Wednesday, April 9, 1997, 8:30–11:30 AM
Thyroid and Steroid Hormones in Non-Genomic Action
Jack L. Leonard

Distinguished Lectureships

Plenary Lectures—11:45 AM–12:45 PM

Monday, April 7
Hugh Davson Distinguished Lectureship of the APS Cell & General Physiology Section
Lecturer: **Erwin Neher**

Tuesday, April 8
Joseph Erlanger Distinguished Lectureship of the APS Central Nervous System Section
Lecturer: **William M. Pardridge**
Title: Molecular regulation of the blood-brain barrier GLUT1 glucose transporter

Tuesday, April 8
Horace W. Davenport Distinguished Lectureship of the APS Gastrointestinal Section
Lecturer: **John B. Furness**

Wednesday, April 9
Julius H. Comroe Jr. Distinguished Lectureship of the APS Respiration Section
Lecturer: **Bernard C. Rossier**

Morning and Afternoon Lectures

Monday AM, April 7
Ernest H. Starling Distinguished Lectureship of the APS Water & Electrolyte Homeostasis Section Distinguished Lectureship
Lecturer: **Jurgen B. Schnermann**
Title: Renal salt excretion and the juxtaglomerular cell complex

Monday PM, April 7
Robert M. Berne Distinguished Lectureship of the APS Cardiovascular Section
Lecturer: **Loring B. Rowell**

Tuesday AM, April 8
Edward F. Adolph Distinguished Lectureship of the APS Environmental & Exercise Physiology Section
Lecturer: **Claus Jessen**
Title: The body core as a source of input signals to the temperature regulation system

Tuesday AM, April 8
Carl W. Gottschalk Distinguished Lectureship of the APS Renal Physiology Section
Lecturer: **L. Gabriel Navar**

Tuesday PM, April 8
Solomon A. Berson Distinguished Lectureship of the APS Endocrinology & Metabolism Section
Lecturer: **C. Ronald Kahn**
Title: The intracellular internet of insulin signalling and its alterations in disease

Wednesday AM, April 9
August Krogh Distinguished Lectureship of the APS Comparative Physiology Section
Lecturer: **Johannes Piiper**
Title: Modeling of external gas exchange, in the wake of August Krogh

Experimental Biology '97

Section-Sponsored Symposia

Milestones in Thermal Physiology
Clark M. Blatteis
Refresher Course for Teaching Respiratory Physiology
Stephen E. DiCarlo
Pathophysiology of Cardiorenal Systems in Obesity
John E. Hall
Mechanisms of Transport Across the Blood-Brain Barrier
Richard A. Hawkins
Vascular Endothelium-Smooth Muscle Communication in the Control of Vascular Function and Growth
Aviv I Hassid & Dennis B McNamara
Recent Insights into the Urinary Concentrating Mechanisms: From cDNA Cloning to Modeling Renal Function
Matthias A. Hediger
Regulating Epithelia from the Apical Side: Novel New Mechanisms
Karl Karnaky, Jr.
Heat Shock Proteins and Myocardial Protection
Rakesh C. Kukreja
Molecular and Physiological Regulation by Intracellular Lipid Transport in the Intestine
Charles M. Mansbach II
Challenges Facing the Undergraduate and Medical Physiology Teachers: Are They the Same?
Harold Modell
Glucagon-Like Peptide-I and the Control of Insulin-Glucose Homeostasis
Svetlana Mojsov
Oxygen Sensing Mechanisms in Mammalian Cells
Nanduri R. Prabhakar and S. Lahiri
Cellular and Molecular Basis of Capillary Permeability
Jan E Schnitzer
Role of Integrins in Acute Renal Injury
Eric E. Simon
The Myocyte Cytoskeleton and Relation to Contractile Protein Synthesis and Function
Francis G. Spinale
Lung Vascular Injury and Remodeling During Development
Kurt Stenmark & Marlene Rabinovitch
Point-Counterpoint on Environmental and Exercise Physiology Issues
Charles M. Tipton
Lipid Induced Satiety and the Role of the Gastrointestinal Tract
Patrick Tso and Timothy H. Moran
Metabolic Engineering: Regulated Gene Expression to Study Metabolic Regulation
Malcolm Watford
Novel Signal Transduction Mechanisms in the Vasculature
Stephanie W Watts & Cathy A Davison
Neurobiology of Temperature Regulation: Role of Stress
Steve Wood
The NO Signal Transduction System in the Lung From Molecular Biology to Bedside Therapy
Warren M. Zapol
Mechanisms of Water Flow Across Biological Membranes
Mark L. Zeidel

Guest Society Symposia

Biomedical Engineering Society
Cellular Interactions with Tissue Analogs and Biomaterials
Prabhas V Moge & Francois Berthiaume
Mathematical Approaches to Cellular Engineering
David Odde and Daniel Hammer

Society for Experimental Biology and Medicine
Estrogen Replacement Therapy: Benefits, Risks and Future Outlook
M.T.R. Subbiah

North American Society for Biorheology
Molecular Mechanisms of Cell-Cell Interactions under Dynamic Flow Conditions
Larry V. McIntire

Special Sessions and Societal Lectures

Bowditch Award Lecture
Physiology in Perspective: the Walter B. Cannon Award Lecture
Public Affairs Workshop *(sponsored by the APS Animal Care and Experimentation Committee)*
Career Opportunities in Physiology Workshop
Education Committee Workshop
The Fifth Annual Women in Physiology Mentoring Workshop

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Experimental Biology

Call for Symposia Topics

Members are invited to submit proposals for APS symposia to their Section Program Advisory Committee representatives. Organizers should consider multidisciplinary approaches with other sections and the contribution by experimentation at multiple levels of investigation.

What specific questions will the symposium address? Are there two or three conflicting issues that warrant presentation and discussion? What does the symposium offer to the intended audience? Are future directions considered in the material to be presented?

Symposium proposals are welcome for the annual spring meeting, Experimental Biology '98. Symposia will be considered for presentation as part of the traditional APS symposia program that highlights areas of interest to the physiological community. In addition, symposia will be considered for inclusion in the cross-society program focusing on one of seven theme areas: Cardiovascular Biology, Respiratory Biology, Epithelial Cell Biology, Metabolic Processes in Health and Disease, Neurobiology, Regulation of Growth and Development, Signal Transduction, and Gene Regulation.

Proposals should be submitted to the appropriate Section Program Advisory Committee representative. All proposals must be submitted on the proper forms and include the following: *1)* title; *2)* organizer and address; *3)* abstract (150 words); *4)* number of half-day sessions required; *5)* names of session chairperson(s); *6)* presenters-discussants—approximately six per half day (list the participant's name and title of presentation as it would appear in the program); *7)* brief biographical sketch (2-3 sentences) of each speaker in the symposium; and *8)* budget information. Symposia are evaluated on the basis of their scientific merit. Organizers will be notified shortly after the 1997 Spring Meeting on acceptance of their proposal. Proposal forms may be obtained by contacting the Membership Services Department (301-530-7164). ❖

APS News

Call for APS Conference Topics

The APS Conferences offer the Society membership the ultimate in programming opportunities. The organizing committee will select the theme or topic, meeting format, abstract categories, method of presentation, and duration of the meeting. The APS will be responsible for all aspects of the meeting management and financial support. In essence, the Society is simply asking you to help organize a meeting that presents the best science, and it will provide the space and work with you to obtain the resources to support you.

Listed below are more specific guidelines to follow in organizing an APS Conference. Any questions regarding the organization of such meetings should be directed to Ethan R. Nadel, Chairperson, APS Program Committee, or Linda Buckler at the APS Office. The deadline for proposals to be considered for 1999 is February 15, 1997.

Guidelines for APS Conference Proposals

There is no special form. Applicants may organize their proposals in whatever format they deem best. By and large, however, the information listed in these guidelines should be supplied.

Up to two Conferences will be selected annually, to be held between June and December of a given year. Selections are made in the following way: each proposal is scored and ranked by members of the Program Advisory Committee (PAC) and the Program Committee (PC) of APS; a recommendation for the Conference(s) to be held is made to the Council of APS; final approval of each Conference is made by the Council. The organizer of the proposed conference must give a formal presentation at the Program Advisory Committee Meeting which is scheduled on the first day of the Experimental Biology meeting.

Each APS Conference should deal with a circumscribed topic, which may be narrow or broad. Although the ideal size is 300-500 attendees, there is great flexibility in this number; except under unusual circumstances, the conference should not be so large as to require the scheduling of simultaneous sessions. Organizers should consider the suitability of a multidisciplinary approach to the topic, as well as different levels of investigation that might range from molecular through systems physiology.

Title

If possible, please include the term "physiology" or "physiological" in the title.

Organizer(s)

An APS Conference may be organized

and proposed by one or more persons. Somewhere in the application, the following information should be supplied for each organizer: name, including complete first name, not just initials; address; telephone, fax, and e-mail numbers; and a very brief biographical sketch (up to four lines), which summarizes the credentials of the organizer(s) for leading the Conference.

Background and Rationale

What is the history of the topic? Are there particular advances in the topic that warrant an APS Conference now? When was a conference last held on this topic? Is a new or unique approach to the topic envisioned for the Conference? What is the degree of current interest in the topic; is it international in scope? Are the main "players" in this field included in the proposal?

Dates and Location

All APS Conferences are held between June and December of a given year. The duration should be 3 to 4 days, and a Saturday stayover should be scheduled to permit low air fares. The rationale for the choice of dates and location should be explained.

The APS discourages the appending of an APS Conference to a national or international meeting in order to take advantage of major personages who will already be attending the other meeting. Despite the higher cost of bringing the key investigators to APS Conferences, the APS wants each Conference to stand on its own, with the clear identity as an APS-sponsored meeting.

Once a venue and dates have been selected, the APS Office in Bethesda will assume the financial and logistical management of the Conference, publicity, and technical exhibits if appropriate.

Sections, Specialty Groups, Other Societies

It is best, although not essential, if a proposal for an APS Conference is submitted under the auspices of one or more Sections or Special Interest Group of the Society. A multidisciplinary approach to the chosen topic is encouraged, so that it is not uncommon for a given Conference to draw participants from several Sections and Interest Groups, as well as from societies other than the APS. Primary responsibility for the Conference, however, will rest with the organizers working through the APS.

Structure

With possibly rare exceptions when a large meeting is contemplated, there should be no simultaneous sessions.

The reviewers can best judge the scientific merits of a proposal if a fairly detailed, although tentative, schedule is given. What subtopics are to be discussed each day? How long will the sessions last? Who will be the speakers? What will be the format of each session plenary lecture, symposium, posters, panel discussion, volunteered slide presentations, and others?

How have the invited participants been chosen? Active roles (including presentations) for young faculty, graduate students, and postdoctoral fellows are encouraged. Has due consideration been given to the inclusion of women and minorities?

For each invited participant, list full name, current position, title of presentation, and whether or not they have been contacted. A majority of the speakers to be invited should be contacted in a tentative manner, making clear to them that final invitations are subject to the proposal being accepted by the Council of APS. Inasmuch as a proposal is prepared more than two years in advance of a Conference being held, as much as 25% of the slots can be left open to allow for later insertion of new developments and speakers.

It is very helpful to the reviewers of the proposal if a summary schedule of the proposed program is supplied (e.g., in the form of a grid/calendar).

Financial Support

Each APS Conference is provided with $25,000 to support the participation of the invited speakers in the Conference. If additional funds are required, it is the responsibility of the organizer(s) to raise these funds. The APS will work with the organizer(s) in raising additional funds for approved conferences.

Deadline

All proposals must be received in the APS Membership Services Department by February 15, slightly more than two years before the Conference is to be held. For example, a proposal for a Conference to be held in October 1999 must reach the office in Bethesda by February 15, 1997.

Send proposals to:
Membership Services Department
The American Physiological Society
9650 Rockville Pike
Bethesda, Maryland 20814-3991
voice: 301-530-7171; fax: 301-571-8313; e-mail: lbuckler@aps.faseb.org

Membership

APS Membership as of March 27, 1996	
Regular	5646
Emeritus	968
Honorary	38
Corresponding	693
Affiliate	12
Student	849
Total	**8,200**

Regular

* Upgrade from Student

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Ambromovage, Anne M.
Hahnemann Univ.

Amsler, Kurt
UMDNJ-Robert Wood Johnson Med. Ctr.

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Univ. of Texas Med. Branch

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Boyle, David W.
Indiana Univ. Sch. of Med.

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Univ. of California, Davis

Brooks, David S.
Le Tourneau Univ.

Brown, Robert H.
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Caplan, Michael
Yale Univ. Sch. of Med.

Cardin, Sylvain
Vanderbilt Univ. Med. Sch.

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Rammelkamp Ctr. for Res.

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Devor, Steven T
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Devos, Wayne Calvin
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EB '97 Deadlines

Abstracts
December 2, 1996

Registration
February 14, 1997

Housing
March 6, 1997

Teachers and Students Benefit From EB '96 Workshop

Twenty-five teachers and 75 students from the Washington, DC area participated in the APS–sponsored High School Life Sciences Workshop for Teachers and Students at the Experimental Biology '96 meeting. The Washington area teachers and students were joined by 22 of the 1995 Summer Research Teacher Fellows for this full day workshop.

The day, which was divided into three segments, included a morning general session for all attendees, lunch with an APS member researcher, and separate hands-on afternoon sessions for teachers and students.

The morning began with a lecture and slide show on the physiological hazards of undersea research due to increased water pressure, which was presented by **Michael P. Hlastala** (Uniersity. of Washington, Seattle). This was followed by **Barry T. Peterson's** (University of Texas Health Science Center at Tyler) mock murder trial using DNA fingerprinting as evidence. This audience participation activity has been presented at several past teacher/student workshops and continues to win high acclaim by workshop attendees. With DNA evidence fresh on the participants' minds, **Jimmie Moore** of LI-COR, Inc., concluded the morning session with a description and explanation of how a DNA sequencer works.

At lunch, small groups of teachers and students met with an APS member to discuss science interests, courses of study, and careers in physiology. The APS member then guided the teachers and students through some of the poster sessions and manufacturers' exhibits to give them insight into a scientific meeting. Said one student participant after the workshop, "[My host's] experiments and the posters he explained were very interesting. He really inspired me and I think I definitely want to go into this field."

In separate afternoon sessions, teachers were led through hands-on activities developed by two of the 1995 Summer Research Teacher (SRT) Fellows, while students participated in a hands-on activity and had a chance to chat with two Howard University graduate physiology students.

Melissa S. Kagle (Santa Fe High School, Santa Fe, NM), who worked with APS member **Barbara A. Horwitz,** University of California, Davis, designed an activity to explore the relationship between oxygen consumption and metabolism. Using a micro-respirometer, teachers measured the amount of oxygen a cricket consumed over a period of time.

Another '95 SRT Fellow, **Tracey Carey** (St. Rose School, Proctor, MN) demonstrated how teachers can lead their students through activities which investigate the effect of microgravity on the cardiovascular system, a phenomenon known as the "puffy-head, bird-legs" syndrome. With the assistance of '95 SRT **Jay Sylvester** (St. Mark's School, Dallas, TX), who obligingly stood on his head, Carey demonstrated how students can measure the change in cardiac output as a result of fluid shifts from the extremities to the head.

Students, meanwhile, were learning some surprising properties of Mobius strips presented by **Douglas C. Curran-Everett** (University of Colorado Health Science Center, Denver). This was followed by a discussion with two Howard University (Washington, DC) graduate students, **Deborah Rayfield** and **Sandra Watson** about the pressures and commitment required of attending graduate school in physiology.

Tracey Carey, 1995 SRT, assists Jay Sylvester, 1995 SRT, as he works his way toward a headstand.

In general, teachers and students rated the day as a positive experience. **Maureen Goodwin**, a teacher at Sandy Spring High School in Sandy Spring, MD, said, "Everything about the day was perfect. You could tell a lot of planning went into the program, from the directions that were sent out in advance to the presentations, which were very age-appropriate."

This was the fifth year the Life Sciences Workshop for Teachers and Students was held at the Experimental Biology meeting. The program was coordinated by the APS Education Committee and APS staff. ❖

APS Awards Prizes to Students at 47th ISEF

The American Physiological Society participated in the 47th International Science and Engineering Fair (ISEF), Tucson, Arizona, May 5-11, 1996 by judging and making special awards. The ISEF, the "World Series" of science fairs, is held annually and marks the culmination of a selection process involving thousands of schools and regional fairs in both the United States and in more than 30 other countries. At the 1996 ISEF, the APS joined with more than 50 other professional organizations and federal agencies making awards in a variety of disciplines.

The APS selection committee consisted of APS members **Ann Baldwin**, **William H. Dantzler**, **Robert W. Gore**, **Gail Koshland**, and **Douglas G. Stuart** from the Department of Physiology at the University of Arizona College of Medicine. Marsha Lakes Matyas, APS Education Officer, coordinated the team's efforts. The selection committee had the difficult task of first identifying which of the more than 1,000 ISEF finalists had projects related to the physiological sciences. From a potential pool of more than 170 projects, the committee then visited and interviewed the candidates in order to select the awardees.

During the awards ceremony, the APS presented four awards for excellence in the physiological sciences: a First Award of $500 and three Honorable Mention Awards. All winners received certificates, subscriptions to *News in Physiological Sciences*, brochures and posters on careers in physiology, lists of institutions granting degrees in physiology, and APS t-shirts.

APS Education Officer M. Matyas presents awards to (l to r) F. Salazar, P. Minasi, C. Lin, and S. Wood Photo credit: FocusOne

The first prize recipient was **Francisco Joseph Salazar**, age 18, Taos High School, Taos, NM, for *Understanding the Relationship Between LFA-1 and the Cytoskeleton: Possibility of Controlling White Blood Cell Adhesion.*

The recipients of the honorable mention Awards were: **Ceen-Yenn Cynthia Lin**, age 17, Lexington High School, Lexington, MA, for *Effects of Growth Factors and Antioxidants on Glutamate Neurotoxicity: Two-Year Study*; **Petros Nazar Minasi**, age 18, Saint Ignatius College Preparatory, San Francisco, CA for *Heavy Metals on the Transepithelial Resistance of MDCK Cells*; and **Seth Morgan Wood**, age 18, Northside High School, Roanoke, VA for *A Higher Place: Effect of Biomechanical Factors on Running Efficiency.*

As in previous years, the 1996 APS judging team regretted that it was only able to make four awards, because there were so many outstanding projects that deserved recognition. Although a large proportion of student projects at the ISEF dealt with life sciences, only 10 of the 52 groups making special awards were life science organizations, primarily in the agricultural sciences. Therefore, the APS continues to play a critical role in recognizing the efforts of these students who commit much time and effort to their research projects in life sciences fields. ❖

Educational Materials Needed for Refresher Course

Members of the APS Education Committee are presenting a symposium entitled "Refresher Course for Teaching Respiratory Physiology" for a half-day during Experimental Biology '97, April 6-10 in New Orleans, LA. The purpose of this course is to promote the exchange of ideas, materials, and factual information that will facilitate the teaching of respiratory physiology.

The Education Committee would like to solicit poster presentations, demonstrations (e.g,. computer simulations, videos), exhibits (e.g., books, lecture outlines, syllabi problem-based cases), and didactic material for presentation from interested individuals.

If you or someone you know has educational materials that stress innovative approaches for helping students learn respiratory physiology, please contact Stephen E. DiCarlo, Department of Physiology, NE Ohio Universities College of Medicine, Rootstown, OH 44272; tel.: 330-325-2511, ext. 345; e-mail sdicarlo@neurocom.edu. ❖

Education

APS Women in Physiology Committee Holds Mentoring Program Workshop and Reception at EB'96

The APS Mentoring Program for Women in Physiology sponsored its annual Mentoring Program Workshop and Reception at Experimental Biology '96. The program is directed by the APS Women in Physiology Committee, chaired by **Celia Sladek**. The workshop and reception at EB'96 were a great success. Program participants were able to meet each other face to face, Committee members were available to answer questions and discuss issues with workshop attendees; plus the gathering was an opportunity for interested individuals to learn about the value of the program and how to participate.

The EB'96 workshop speaker was **Barbara A. Horwitz**, University of California-Davis and APS Council member. Horwitz discussed the pro's and con's of advice that graduate students and postdoctoral fellows commonly receive about how to be successful in a research career. After her initial comments, Horwitz opened the floor to questions and facilitated a dynamic discussion on current issues faced by graduate students, postdoctoral fellows, and new faculty members. Marsha Lakes Matyas, APS Education Officer, also presented a brief summary of program statistics as well as more general information about the program.

More information on the program and application forms are available by contacting Marsha Lakes Matyas in the APS Education Office at (301) 530-7132, or by email at mmatyas@aps.faseb.org. Questions can also be directed to members of the Women in Physiology Committee. ❖

Public Affairs

Biomedical Scientists Criticize CRI Report

The Coalition of Biological Scientists (CBS) representing some 285,000 researchers has sent a letter urging the Department of Health and Human Services (DHHS) to reject several key recommendations of the Commission on Research Integrity (CRI).

Representatives of many of the 50 scientific organizations that eventually signed the letter met April 30 near Washington, DC to discuss the issues raised in the report of the CRI. The commission, which was disbanded after its task was completed, made several controversial recommendations, including a new definition of scientific misconduct and recommendations about how misconduct investigations ought to be handled. Speakers at the morning session included former CRI chairman Kenneth Ryan and Howard Schachman, a member of the FASEB Public Affairs Advisory Committee, and an outspoken critic of the commission report. William F. Raub, Science Advisor at DHHS, was also present, and discussed how the department expected to proceed with developing congressionally-mandated regulations for the protection of whistle-blowers.

As a result of the meeting, a letter was sent on May 13 to Raub, conveying the views of fifty professional societies whose combined membership represents more than 285,000 biomedical and bioscience researchers. The letter notes that while "some parts [of the CRI report] have considerable merit," it also puts forward many "inappropriate" recommendations and is therefore "an inadequate basis for policymaking by the DHHS."

The coalition took issue with CRI's recommendations concerning the definition of misconduct, efforts to protect whistleblowers, and creating appropriate oversight structures. The coalition agreed that it was important to have a government-wide definition of misconduct in science, but objected to the one proposed by CRI. CRI recommended in place of the current definition of scientific misconduct as falsification, fabrication, and plagiarism, it should be defined as "misappropriation [of intellectual property], interference [with the research process], and misrepresentation [of the data]." CBS stated that original definition "serves as a clear guide for practicing scientists, teachers, and administrators, and establishes an unambiguous basis for investigating allegations of misconduct." The CRI definition, on the other hand relies on "an open-ended set of examples" and would likely result in "extensive litigation to produce well-defined standards."

Second, the coalition letter notes that the CRI recommendations for protecting whistleblowers "fail to give proper balance to both sides of these disputes and ignore the traditional principle of due process." Another specific problem

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CRI Report Criticized

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was the recommendation that charges of misconduct be disclosed publicly even in cases where the accused researcher is exonerated. Such a disclosure might "entail a loss of reputation and result in damage to scientific careers," the coalition said. In addition, CRI proposes that accusers be given the right to "raise objections concerning the possible partiality" of reviewers and that they be allowed to "comment on the accuracy and completeness of information relevant to their concerns." CBS argues that "These provisions make the accuser part of the investigating team and create an asymmetric relationship with the accused."

Finally, the CBS letter disagrees with the CRI recommendation to create administrative oversight mechanisms such as forms, certifications, reviews, on-site visits, and audits. The coalition expressed concern that these mechanisms will "result in substantially greater federal involvement in institutional operations," and will "reduce the productivity of the public's investment in science."

The coalition emphasized scientists' willingness to police themselves in matters of scientific misconduct and expressed a reluctance to see complex federal mechanisms established for the oversight of the less serious infractions and affirmed the following points of agreement from the April 30 coalition meeting:

• Issues of misconduct should be handled at the level of the research institution, whenever possible.
• Falsification, fabrication, and plagiarism are so detrimental to the conduct of science that government action is appropriate when institutions fail to provide proper oversight of federally funded research.

Other problems, such as authorship disputes, present a less severe danger to the scientific enterprise should be dealt with at the institutional level. In those instances, government involvement should be limited to encouraging institutions to establish germane principles and educational programs for the full range of individuals involved in the research process. ❖

House Panel Recommends 6.5% Research Increase for NIH

A House Appropriations Subcommittee recommended a 6.5% increase for NIH research programs in FY 1997. In addition, the panel provided $90 million towards modernization of NIH's clinical center hospital, for a total increase of $820 million. This would give NIH a budget of $12.747 billion in FY 1997 as compared with its FY 1996 appropriation of $11.928 billion.

The funding increase was recommended June 14 by the House Appropriations Subcommittee on Labor-HHS-Education. It was a victory for the Labor-HHS-Education Subcommittee Chairman John Porter (R-IL), who last year declared his intention to seek a 6.5% increase for NIH research.

The prospects for a 6.5% increase seemed uncertain at that time because Congress and the White House were deadlocked over FY 1996 funding, with many House Republicans adamant about the needs for deep cuts in domestic spending to achieve a balanced budget by 2002. The administration's budget proposal submitted earlier this year also presented a serious obstacle because the Office of Management and Budget insisted that some $300 million of NIH's proposed increase for FY 1997 be dedicated to covering the full cost of modernizing the clinical center hospital, even though the construction would take several years.

However, Porter persisted, with the support of the biomedical research community, and finally the situation began to break in NIH's favor. First, the House and Senate leadership decided to avoid another year of knock-down, drag-out budget fights by providing extra funds for domestic programs such as health and education. This took some pressure off what Rep. Nancy Pelosi (D-CA) called a "lamb eat lamb" situation, where NIH funding has to compete with domestic social programs like Head Start and energy assistance for low-income citizens. One hero who emerged from the budget fray was Senate Budget Committee Chairman Pete Domenici (R-NM), who shifted $5 billion into domestic spending in the FY 1997 Senate budget plan. Domenici then went the extra mile to insist that the House accept $4 billion of that infusion in the final budget blueprint.

Another change in the situation that made the 6.5% increase for research possible was that Rep. Porter pushed to be able to stretch out the payments for clinical center modernization project across several years.

Among the provisions included in the bill is one to limit the amount of funds made available for Small Business Innovation Research (SBIR). This set-aside had been scheduled by law to increase automatically from 2% to 2.5% of NIH's extramural research budget. The subcommittee wrote language into the bill to limit the amount SBIR research NIH can fund to a pool of grants whose median priority score is the same or better than the median score of the pool of comparable investigator-initiated R01 grants. APS strongly supported this policy change.

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NIH Increase

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Other highlights of the bill:

• Most institutes, centers, and divisions are expected to get increases of 6-7%. The largest percentage increase goes to the National Center for Human Genome Research which will get a 11.5% increase to raise its budget from $170 million to $190 million. Other large increases are expected to go to NIAID (7.5%); the National Institute for Deafness and Communications Disorders (7.3%) and the National Institute for Nursing Research (7%). The smallest institute increases are expected to be those for NIGMS (6%); the eye and cancer institutes (6.1%); NHLBI (6.15%); the arthritis and drug abuse institutes (6.2%) and NIDDK and the child health institute (6.3%).

• The subcommittee approved an amendment offered by Rep. Nita Lowey (D-NY) to soften language approved last year banning NIH support of human embryo research. The amendment would permit NIH to fund research with leftover embryos donated after in vitro fertilization but not with embryos created for the purpose of research. Rep. James Dickey (R-AR), who sponsored the ban, indicated that he would seek to reinstate it when the bill goes to full committee. "We think it's a matter of the sanctity of life," Dickey was quoted as saying.

• The NIH will be granted the necessary legal authority to collect insurance payments for the care of patients being treated at the clinical center.

• AIDS funds will be provided directly to the institutes, rather than being channeled through a consolidated account managed by the Office of AIDS Research. The House treated the AIDS appropriation this way last year as well.

• The subcommittee will still provide a table in the report accompanying the bill with a breakdown of what funds expected to be spent on AIDS versus non-AIDS research. The bill also gives the director of the Office of AIDS Research jointly with the NIH Director the authority to transfer up to 3% of AIDS funding between institutes.

• The report accompanying the bill also includes language apparently intended to call into question the amount of funds currently allocated for AIDS research. The language, submitted by Rep. Ernest Istook (R-OK), asks NIH to explain its criteria for distributing funds among diseases. Recalling that in its report last year the committee had encouraged NIH to allocate research funding based on scientific opportunity, the report takes note of the fact that various factors may also come into play in funding decisions, i.e., the infectious nature of a disease and the severity of its impact. "The Committee does not presume to judge which criteria should take precedence in individual funding decisions, but it urges NIH to consider the full array of relevant criteria as it constructs its research portfolio," the report said. The language then asks NIH to "report in detail the process it uses to distribute funding and the rationale for the criteria used in decision-making." Istook has been critical of the amount of funding currently allocated to AIDS as opposed to other diseases.

The bill was scheduled for speedy action by the full Appropriations Committee in the hopes that full House action would be completed quickly since legislative time is short this year.

Letters of appreciation to Rep. Porter can be sent to 2373 Rayburn House Office Building, U.S. House of Representatives, Washington, DC 20515. ❖

House Panel Modestly Increases NSF Budget in FY 1997

In the first action on life sciences research budgets for FY 1997, the House Appropriations Subcommittee on VA-HUD provided a 4.7% increase for NSF and froze VA medical and prosthetic research at its current level. NASA was given a $259 million increase over its FY 1996 budget, but there were no details available about how the small life sciences competitive grants program would fare under such a budget.

In its May 30 action, the House Subcommittee provided NSF with $108 million more than its FY 1996 level but $50 million less than the administration's request. In testimony supplied to the subcommittee, APS had supported the FASEB recommendation for a 12.1% increase for the Biological Sciences Directorate. The panel provided $257 million for VA medical and prosthetic research, the same level as in FY 1996 and also the same as the administration's request. APS supported the FASEB recommendation that medical and prosthetic research be provided with $277 million through the VA-HUD appropriation, plus another $20 million to be "passed through" the Department of Defense Appropriation. ❖

The APS Public Affairs Web Page has grown...

Point your Browsers at http://www.faseb.org/aps/pahome.htm and check out the latest improvements. We look forward to your feedback and questions! Just send an e-mail to paffair@aps.faseb.org.

Surfing the Federal Government Pages

A lot of people are visiting the White House these days. Sometimes there are so many visitors that you cannot even get near the place. Many of these visitors have never been to Washington, DC—instead, they're visiting the White House on line, at http://www.whitehouse.gov. The Federal Government, as part of the National Performance Review, is committed to making information available on the Internet and has done a great job—a quick search turned up dozens of interesting and useful sites.

Start at Yahoo's Government page (http://www.yahoo.com/Government/). A little exploring will take you to the US Department of Health and Human Services (HHS) home page (http://www.os.dhhs.gov). HHS's page is somewhat difficult to use, but there are a number of great science-oriented pages. One possible destination is the Centers for Disease Control and Prevention (CDC) home page at http://www.cdc.gov. CDC offers links to *Morbidity and Mortality Weekly Report Online*, and CDC's own peer-reviewed electronic journal, *Emerging Infectious Diseases*. There are also employment and funding links.

Then, you can click over to the Food and Drug Administration's *Internet FDA* (http:// www.fda.gov). There are several major categories of information, including human drugs, animal drugs, cosmetics, biologics, medical devices, toxicology, and foods and nutrition. One of the most useful features is a searchable Approved Drug Products (better known as the Orange Book) database.

Next is the National Science Foundation home page, at http://www.nsf.com. This site contains a wealth of grant and funding information, including the NSF Grant Policy Manual, the Grant Proposal Guide, the full NSF Grant Proposal Forms set (in Microsoft Word and WordPerfect formats), and program deadline information. The NSF gopher site (gopher://gopher.nsf.gov) is still maintained also.

More grant information can be found at the National Institutes of Health home page (http://www.nih.gov). NIH provides the Guide to Grants and Contracts database, as well as information on funding opportunities, grants policy and awards data. Forms are available for downloading in standard word processing formats. In addition to grant and contract information, there are also links to the National Cancer Institute, the National Library of Medicine (and NLM's extraordinary Visible Man and Visible Woman datasets), and the NIH Information Index, which provides information on diseases currently under investigation by NIH or NIH-supported researchers. GrantsNet (gopher://gopher.os.dhhs.gov:70/11/grantsnet) is a directory of HHS granting offices, grants management staff, and grants program personnel. You can find HHS policy manuals and statements, relevant laws and executive orders, and grant audit standards and requirements.

If you are looking for statistics on students or faculty, try the National Center for Education Statistics (http://www.ed.gov/NCES/). NCES provides a wide range of datasets on a variety of topics, including the National Survey of Postsecondary Faculty, the Recent College Graduates study, and the National Education Longitudinal Study of 1988 (NELS:88).

Finally, you can send e-mail to the President and Vice President at the aforementioned White House site. There is a handy form that you can fill in and send, provided your browser supports forms. If it does not, you can send a regular e-mail message to president@whitehouse.gov or vice.president@whitehouse.gov. You'll receive an automated acknowledgement letter by return e-mail, and you may receive a paper letter via snail mail a few weeks later. It could not be easier!

As always, please send suggestions and URLs to kthompso@aps.faseb.org. URLs submitted will appear in future issues of *The Physiologist*. ❖

Point your Browsers at:

The Physiology and Biophysics Departmental Web Site at the University of Alabama, Birmingham has recently upgraded their web site. UAB Physiology and Biophysics can be found at: **http://www.physiology.uab.edu.** Submitted by James Schafer.

The Department of Physiology at Colorado State University has a new home page. It can be found at: **http://www.vetmed.colostate.edu/physio/physio.html.** Submitted by Alan Tucker.

The physiology program of the Department of Environmental Health at the Harvard University School of Public Health has a web site at: **http://ppg-core.harvard.edu.** Submitted by Emil Millet.

Don't Forget!

The APS Home Page is located at **http://www.faseb.org/aps/**
Stop by often to check on our progress and give us feedback via e-mail at: webmaster@aps.faseb.org

Letters to Richard Malvin

Alfred H. Lawton writes "It is good [of] you and the American Physiological Society to keep in touch with [those of] us who are aging. Come July I will be 80. Yet inside, I must confess, I find that I do not feel much older than when I was getting my physiology training with A. C. Ivy, and Carl Dragstedt at Northwestern University.

"Although I had a kidney removed five years ago for cancer, I am physically, mentally, and emotionally still active. I just finished teaching a 16-week-long course in exercise physiology for the residents of [my] retirement community because we have a new fitness center here. Also I still teach some accredited Continuing Education course hours for the RNs and LPNs in our nursing home and rural health clinic.

"In my first years in medical school I became fascinated with physiology and even today I found it to be the most exciting discipline for study and research. I've never regretted for a moment that I took the extra time to get my PhD as well as MD. It has been an exciting and profitable life."

Joseph H. Hafkenschiel writes "I became a member in 1950, so last year was my 45th on the mailing list.

"In the October 1995 issue, I was pleased to see Domingo Aviado mentioned, as he was a rising star of the teaching/investigating team that Carl Schmidt and A. N. Richards had assembled in Pharmacology at the University of Pennsylvania.

"My good fortune was to be able to join that group, along with Jim Eikinhoff in the fall of 1945 when we were released for military duty. Other luminaries then there were Dave Bruner, Seymour Kety and Julius Comroe, that I recall.

"I terminated laboratory bench work in cardiovascular physiology/pharmacology in 1960. Because of administrative differences I disbanded the cardiopulmonary unit which I had started in 1954 at the new Lankenau Hospital in suburban Philadelphia.

"From that time until I retired on 31 December, 1983, my work was one of patients and voluntary teaching in medicine (at Penn 1945-1965) and later at Stanford (1966-1984). Soon afterwards, the title Emeritus Clinical Associate Professor of Medicine was bestowed on me.

"Although the Department of Medicine at Stanford has scheduled me for teaching sessions, I have been unable to fit the suggested times into my schedule of residing in Portala Valley, Northeast Harbor, and Villanova.

"Now my time is spent playing bridge, golfing in good weather, and world travel.

"When I read the *Annals*, the *Journal of the Royal Society of Medicine*, and *The Physiologist*, I think about how lucky I was to meet as many wonderful physiology teachers and practical idealists.

"There is no greater calling than teaching physiology, whether junior or senior."

Lee Langley writes "In 1973 I left NIH with the full intention of returning to Southern California. But fate intervened. First I was invited to spend two weeks at the new UMKC School of Medicine to lecture students on basic physiology. Hard to do in two weeks. The next year I was invited back again and given four weeks for my efforts. During that time I was offered a full-time position of Associate Dean and Professor of Physiology. I accepted. Thus began an interesting experience which, though I officially retired in 1986, continues unabated.

"UMKC School of Medicine enrolls students after they graduate from high school. They then spend six years in the program receiving both the BA and MD degrees. The basic sciences are the responsibility of the School of Basic Life Sciences, not the Medical School. Physiology is gang taught. There is no student laboratory work. It is an arrangement to be avoided at all costs! Early on, anyone could see that only the outstanding students, who need no formal courses, were prospering, leaving all too many students, in my opinion, inadequately based in physiology. Accordingly, I began to offer a one-month elective [in physiology for medical students] twice a year. It quickly became very popular with approximately 80 percent of each class electing to attend.

"That elective has been criticized because a single instructor is not supposed to "cover" all of physiology, and secondly, on the grounds that I was teaching "to the Boards," whatever that means....Not only did the students gain a much firmer foundation, but quite a few were stimulated to consider, even experience, a career in research, and I am delighted to say that I was able to place them in research programs and they are now active in their own research programs.

"Interestingly, those electives continued until I retired. Then, last year, the medical school asked me to offer the course again. In the meantime, I have been participating in a Board Preparation Course. It attracts students from literally all over the world. This is truly "teaching to the Boards" and perhaps should not be done. Perhaps? That decision is not mine. I participate because I enjoy it, and observing the transfer of knowledge and understanding of how to think is the biggest reward for any teacher. I hope to continue with both courses for some time to come!

"What else? I'm equally proud of my athletic abilities. A couple of years ago I qualified for and competed in the Senior Olympics in swimming and tennis. Didn't come away with any gold, but along with some 8,000 other seniors I thoroughly enjoyed the competition, did reasonably well, and plan to qualify again this year. You see, I will be the youngster in the 80 to 84 year-old bracket!

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News From Senior Physiologists

"Finally, I remarried last year. In summary, life is very full, and indeed productive." **Ernst Knobil** writes "While born in 1926, I am not yet retired and still pursue teaching and research supported by an NIH Merit Award on a full-time basis. These efforts are being leavened by extensive extracurricular activities comprising service on a number of committees of the National Academy of Sciences, the American Association of Medical Colleges, and the APS.

"My plate continues to be too full but, somehow, I always accept additional helpings."

Letter to Harold S. Weiss

Newman L. Stephens writes "Since attaining 70 nothing has changed in my life. I am still conducting research on contractility mechanisms in smooth muscle and how these are altered in asthma. All my funding remains intact, as does my laboratory and complement of 7 graduate students. The laboratory published 10 papers last year and organized two international symposia.

"My teaching continues as before and consists of participation in two full courses and two half courses.

"There is no compulsory retirement in our province of Manitoba, so, without wishing to seem indestructible, I plan to keep on working indefinitely."

Letter to John R. Blinks

Sydney M. Friedman writes "Thank you so much for conveying the good wishes of the Senior Physiologists Committee on my 80th birthday. This no longer seems such a venerable age as it once did. I have had an exceptionally good run—55 years of active work with only a couple of years out in the Air Force, the challenging opportunity to set up the Department of Anatomy in a brand new medical school, and continuous encouragement on all sides to indulge myself in my preoccupation with the fascinating role of sodium in hypertension. My health is good and, although my lab is now closed down, I did manage last year in a short publication to theorize a bit about salt and blood pressure.

"I continue to read, think and paint and in the summer Connie and I run our boat around the beautiful islands of the Pacific Northwest." ❖

People and Places

NAS Honors Two APS Members

Marcus E. Raichle

APS Members **Marcus E. Raichle**, of Washington University School of Medicine in St. Louis, and **Setsuro Ebashi**, of the National Institute for Physiological Sciences in Okazaki, Japan, are two of 60 new members elected into the National Academy of Sciences. Election into this organization is considered one of the highest honors that can be accorded a scientist in the United States. Currently, there are 1,760 active members in the Academy.

The National Academy of Sciences is a private organization of scientists and engineers dedicated to the furtherance of science and its use for the general welfare. It was established in 1863 to act as an official adviser to the federal government in matters of science or technology. New members are chosen in recognition of their distinguished and continuing achievements in original research.

Raichle is a professor of radiology and codirector of the Division of Radiological Sciences at Washington University's Mallinckrodt Institute of Radiology. He is also a professor of neurology and neurobiology at the school of Medicine and a senior fellow with the university's McDonnell Center for Studies of Higher Brain Function.

He is known for his pioneering research in the use of positron emission tomography (PET) to map specific brain areas used in tasks such as seeing, hearing, reading, and remembering, as well as emotion. PET was developed at Washington University during the 1970s to allow researchers to safely and noninvasively study the living human brain and track and record its function in health and disease.

Raichle's research has helped in the development of a much better understanding of those areas of the normal human brain responsible for language, thought processing, and emotion. By using PET to monitor blood flow and metabolism in the human brain, Raichle and his collaborators have shown how

the brain responds when a subject is asked to memorize words or to think sad thoughts. In addition, they have mapped areas involved in attention, analyzed chemical receptors in the brain, investigated the physiology of major depression and anxiety, and evaluated patients at risk for stroke.

Raichle joined the faculty at Washington University as a research instructor in neurology and radiology in 1971. He became a professor of neurology in 1978 and a professor of radiology in 1979. He received his bachelor's degree from the University of Washington in Seattle in 1960, his medical degree from the same institution in 1964, and his neurology training at the New York Hospital-Cornell Medical Center in New York City.

Honorary member Ebashi has been the Director of the National Institute for Physiological Sciences in Okazaki, Japan from 1983 to 1991. He was also President of the Okazaki National Research Institutes from 1991 until his retirement in 1993. He is currently the Past President of the International Union of Pharamcology.

Ebashi's research into the chemistry of muscular contraction led to the discovery that muscle relaxation is induced by removal of Ca^{2+} from the actomyosin system. Ebashi also researched the molecular basis of Ca^{2+} sensitivity and discovered troponin. Thus, his research established the present view of the Ca^{2+}-controlled molecular mechanism of muscle contraction and the contractile system underlying physiological muscle contraction: myosin, actin, tropomyosin, and troponin. Ebashi also identified the relaxing factor in muscle as granular-MgATPase, isolated in 1948 by Kielley and Meyerhof.

Ebashi received his MD from the University of Tokyo in 1944. After two years of naval service, he began his scientific career in the Department of Pharmacology under the direction of Professor Hiroshi Kumagai.

Setsuro Ebashi

Among Ebashi's many accomplishments is included election as President to the International Union of Pure and Applied Biophysics (1978-1981), appointment as Professor Emeritus of the University of Tokyo, and Foreign Member of Academia Europaea. Since his retirement in 1993, Ebashi has continued his research on a small scale. ❖

APS Members Honored

Four APS members were elected recently to the American Academy of Arts and Sciences. Following is a list of the fellows, their institutional affiliation, and the section of the academy to which they were elected.

Alfred P. Fishman, University of Pennsylvania; medicine and public health.
Rodolfo R. Llinas, New York University; physiology, pharmacology, neurobiology, and behavioral biology.
Kenneth I. Shine, Institute of Medicine; educational and scientific administration.
Tomas Hökfelt, Karolinska Instituet, Sweden; physiology, pharmacology, neurobiology, and behavioral biology. ❖

Block Wins MacArthur Fellowship

APS member Barbara Block is one of 21 new MacArthur Foundation Fellows announced on June 17. MacArthur Fellowships range from $150,000 to $375,000 over five years and are unrestricted awards in support of persons, not projects or organizations.

Block is a marine animal physiologist who studies the physiology, ecology, and evolution of tuna, billfish, and other open ocean fishes. She has investigated the mechanism by which some of these species actively regulate their brain temperature using specially adapted eye muscles. Block has analyzed the genes that account for this thermogenesis in order to understand the evolution of heat generation and temperature control. In addition, she has devised unique methods for tracking individual fish in their habitat to examine their physiological ecology.

These studies combine to form a comprehensive picture of these animals, from the molecular to the behavioral, providing invaluable data for better management of our marine resources. She has also been instrumental in establishing the first captive population of tuna in North America for research and conservation.

Block is an assistant professor of biological sciences at Stanford University. She received her BA in 1980 from the University of Vermont, and her PhD in 1986 from Duke University. Block was the 1995 Henry Pickering Bowditch Lecture Awardee. She will receive $245,000 as a MacArthur Foundation Fellow. ❖

A. Clifford Barger: A Human Physiology Teacher (1917 - 1996)

A. Clifford Barger, the 43rd president of APS, died of liver cancer on March 13, 1996 at his home in Brookline, Massachusetts. During his service on Council and in his presidential offices, Barger led the Society into effective programs not only for advancing the general goals of APS but also for improving professional opportunities for underrepresented minority groups and women. He has written: "My most important contributions probably have been founding and funding of the Porter Physiology Development Program and the education of minority physiologists through the Porter Physiology Development Committee, as well as the first presidential tour to the predominantly black schools, the organization of a workshop for minorities in research, ... and support of women in the affairs and offices of the Society."

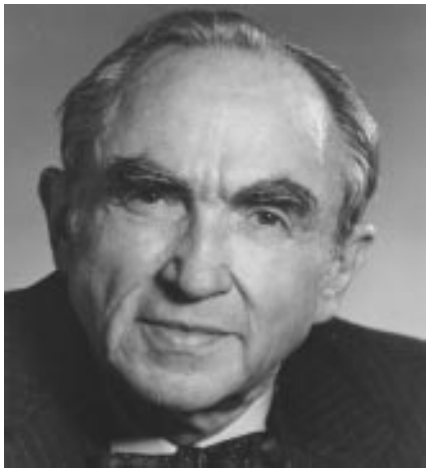
Barger spent his entire life in Massachusetts. He was born in Greenfield in the western part of the state on February 1, 1917. As a young man he went east to look for a course and found his professional career almost entirely within 10 miles of the Boston Common. He graduated from Harvard College in 1939 and from Harvard Medical School in 1943. For the next two years he served as a house officer at the Peter Bent Brigham Hospital where his focus was on alleviating human suffering through scientific understanding.

In 1946 he joined the Department of Physiology at Harvard Medical School under the tutelage of Eugene M. Landis, 25th president of APS. Barger moved steadily up the ranks to become professor of physiology in 1961 and Robert Henry Pfeiffer Professor 2 years later. During much of this time he also held joint appointments on the staff at Peter Bent Brigham Hospital, Children's Hospital Medical Center, and St. Vincent's Hospital. In 1974 Barger filled the position as chairman of the physiology department at Harvard Medical School.

From his undergraduate training to professional life, teachers played a critical role in Barger's training. As an undergraduate he studied metabolic functions in muscle under D. Bruce Dill (23rd president of APS) at the Harvard Fatigue Laboratory. This work was published with his college teacher, Robert Johnson, in the *Journal of General Physiology* (24: 669-677, 1941). As an intern he studied certain endocrine functions in exercise endurance in patients with progressive muscular dystrophy under George Thorn. As a postdoctoral fellow he studied cardiovascular homeostatic functions under Eugene Landis. Barger attributed his rapid progress in physiological sciences to his early exposure to a physiology teacher at the Fatigue Laboratory: "I was fortunate as an undergraduate to be a student fellow in the Fatigue Laboratory when D. Bruce Dill...was director."

The early experience with cardiovascular homeostatic functions with Landis led naturally to over 35 years of ongoing research on the pathophysiology of congestive heart failure, coronary artery disease, and renovascular hypertension. Aside from more recent literary work, it is these three areas of science which bought Barger into international prominence. The chief vehicle was to identify and develop effective animal models of these clinical disorders.

Barger's first attempt was to explain why patients with congestive heart failure retain water and electrolytes. To this end he developed a dog model with combined tricuspid valvular insufficiency with pulmonary arterial stenosis to produce a number of physiological manifestations of right-sided



congestive heart failure (*Am. J. Physiol.* 169: 384-399, 1952). Later experience demonstrated for the first time that infusion of aldosterone preferentially regulated potassium in these dogs. Barger and his students then discovered that dogs with congestive failure had a
reduced blood flow to the renal cortex. To study this problem he developed an inert gas technique for measurement of regional blood flow in the kidney (*Circ. Res.* 13: 290, 1963).

In later years coronary artery blood flow and coronary artery disease became a focus of the Barger laboratory. The most significant observation was that the vasa vasorum played an important role in pathogenesis of coronary artery plaque formation, confirming an observation made nearly 50 years earlier. The dog model of heart failure played a pivotal role in these discoveries.

An animal model of renal-induced hypertension was the final scientific focus of Barger (*Am. J. Physiol.* 224: 66-72, 1973). This model was made possible by the prior development of methods for inducing chronic changes in blood flow of unanesthetized dogs and consequently for studying sequential changes in functions of the renin-angiotensin system. One important discovery was that under conditions of salt restriction, hypertension can be initiated, developed, and main-

tained by the renin-angiotensin system. The more significant discovery, however, was that the plasma levels of renin and angiotensin showed a biphasic profile over time. This observation later led to the classification of hypertension and congestive heart disease into high renin (hyperenin state) and low renin states (low renin syndrome). Over 23 other clinical disorders have now been classified using this renin designation (*Kidney Int.* 43: 983-999, 1993). Besides congestive heart disease and renal-induced hypertension, these disorders include diabetes mellitus, pheochromocytoma, polycystic kidney disease, and the skin disorder scleroderma. Barger and his students were the first to show not only that blockade of the renin-angiotensin system was a critical step in the development of hypertension and heart failure but also that this essential clue provided the critical evidence for the development of the first effective treatment strategies for these diseases.

As a teacher, Barger was acutely aware of the need to bring the abstract reality of science to the larger public by using visual aids. In his lectures to medical students, graduate students, and house officers he often brought to the classroom models of the organ or system. With his students he prepared full-length video films of movements in blood vessels of the kidney and the heart and tubules of the kidney. Altogether these films have been awarded 12 prizes and medals.

Barger held many important offices both locally and nationally. In Boston, he served as president of the Boylston Medical Society, the Massachusetts Society for Medical Research championing the cause of animal research, the Harvard Apparatus Foundation (later the William Townsend Porter Foundation), and the Cannon Society of the Harvard Medical School, an academic society seeking to preserve and perpetuate the ideal and legacies of Walter Bradford Cannon. He was the co-author of the definitive biography of Cannon. Nationally, he served on committees and Boards of the National Research Council, National Institutes of Health, National Cancer Institute, American Heart Association, National Board of Medical Examiners, and on editorial boards of *Proceedings of the Society of Experimental Biology and Medicine*, *Circulation Research*, *New England Journal of Medicine*, and *American Journal of Physiology*.

Honors Barger received include the Certificate of Merit of the National Society of Medical Research, Memorial Lectureship of Harry Goldblatt, Annual Sosman Lectureship of Peter Bent Brigham Hospital, and Carl J. Wiggers Award of APS. He was elected a Fellow of AAAS and a member of the Institute of Medicine of the National Academy of Sciences. He also received honorary doctorates from the University of Cincinnati and the University of Massachusetts Medical School.

During much of this time his focus was on opening doors for those less fortunate who had not yet experienced the wonders of physiological science. Barger's designation as co-chair of the Porter Development Committee in 1966 marked the official beginning of his effort to apply resources available to the Society in the interests of minority scientists. Funds distributed by this committee originate from the Harvard Apparatus Foundation, successor to the original Harvard Apparatus Company founded by William Townsend Porter. In a graceful although brief biography of Porter, Barger wrote of how in 1929 Porter offered to give the Harvard Apparatus Company to APS, but Council declined to accept the gift. Porter's response was to set up a nonprofit foundation to run the company, with the net proceeds then turned over to APS to support the Porter Fellowship. In his past president's address, Barger described the fascinating history of personal interactions among Bowditch, Porter, and Cannon and recounted how funds from the Harvard Apparatus Company were made available for the benefit of young minority-group physiologists. Barger conceived this idea and in 1965 persuaded Council to approve it. In the autumn of 1995 Barger resigned as president of the William Townsend Porter Foundation.

Before his departure Barger was busy at work writing the second volume of the life of Cannon and reflecting on a life full of human achievements. He had come to Boston to find his place in a life of service. Besides his wife Claire and his children Craig, Shael, Curtis, he leaves a human legacy of hundreds of former students and fellows to whom he brought inspiration, hope, and guidance. In the ensuing years he found teachers who nurtured his mind, a community that shared his vision, and a group of people who benefited from his generosity.

It has been noted that Barger will be remembered in the annals of APS not only for his many contributions to the physiology of the heart, kidneys, and their integrative functions, but perhaps even more for his dedication to the training and careers of scores of young investigators of diverse backgrounds. The physiological sciences will remember A. Clifford Barger as a most human physiology teacher and minority scientists will respect him for his courage and generosity of spirit. For those who had the privilege of knowing him, he will remain a lasting spark of hope, a genuine bounty of love, and a clear vision of an integrative community.

John Fray
National Science Foundation

Membrane Protein Structure: Experimental Approaches

Stephen H. White (Editor)
New York: Oxford University Press, 1994, 395 pp., illus., index, $65.00
ISBN: 0-19-607112-3

Recognition of the fundamental role of biological membranes and their associated proteins in the physiology of the cell has stimulated multidisciplinary efforts to gain a comprehensive understanding of their structure and interactions. However, the complexity of these systems has made progress difficult in spite of the considerable effort of researchers from a variety of disciplines, both theoretical and experimental. The perception of slower progress is accentuated by comparison to the impressive success of structural biology in expanding the knowledge base on water-soluble proteins. This is attested to quantitatively by the vast disparity in size between the structure databases for soluble proteins, currently containing over 4,000 structural entries at atomic resolution, and those for membrane proteins, which can claim only a handful of members even including the lower resolution structures obtained from electron diffraction experiments.

As a result of the enormous difficulties in growing the three-dimensional crystals of membrane proteins necessary for obtaining atomic resolution structures by standard X-ray crystallography, a variety of alternative experimental and theoretical approaches are being utilized to seek information about the three-dimensional structure of membrane proteins. This book highlights selected areas of recent progress in the field with a well-chosen collection of comprehensive analyses. Without attempting to offer an exhaustive summary of the current literature, the Editor has enlisted as contributing authors a number of distinguished scientists who have contributed greatly to our current understanding of membrane protein structure and function and who have written excellent reviews that survey and illuminate a rapidly moving field of research.

The sixteen chapters in the book are organized in four sections, each dealing with a broad but well-defined area of interest, introduced by a brief editorial and summary. The first section focuses on methodologies and approaches for the prediction of the structure of membrane proteins based on their amino acid sequence and on the rules of folding, which can be deduced from the analysis of the few known high-resolution structures. The chapters in this section point out how much is already known that can be used as a basis for three-dimensional structure prediction but correctly emphasize how little this is relative to the knowledge base required for reliable prediction of structure from sequence.

The section opens with a very clearly written chapter by D. C. Rees and collaborators, who compare the structural features of water-soluble and transmembrane proteins and discuss in some detail the thermodynamics of protein stability, with special consideration to the role of hydrophobic interactions. In the following two chapters, clear and informative discussions of the signals that identify the various membrane protein structural domains and guide the proper insertion and folding of the nascent amino acid chain and its sorting to the appropriate cellular compartment are presented by G. von Heijne, who formulated the "positive inside rule" for membrane protein topology, and by J.-L. Popot and collaborators, who introduce the mechanisms of assembly of multidomain integral membrane proteins including pumps, receptors and channels. It is perhaps characteristic of an attempt to describe this fast-moving field that the specific hopes and expectations for data and information expressed by the authors, such as von Heijne's plea for techniques to map the relative orientations of transmembrane helices, have already been the subject of exciting current publications.

The first section closes with a chapter contributed by the Editor, S. H. White, who discusses in formal as well as practical detail the application and potential pitfalls of sequence hydropathy analysis used in the prediction of membrane protein topology. Especially insightful is the discussion of the peculiar characteristics of the structure of the core and interfacial regions of the lipid bilayer, which are relevant to the thermodynamics of peptide-membrane interaction.

Experimental approaches for the determination of protein topology are the subject of the second section of the book. The powerful molecular biological methods of gene fusion are introduced in a lucid and informative chapter by D. Boyd, while time-tested chemical, biochemical, and immunological methods are discussed in the chapter of D. Cafiso that is centered on the nicotinic acetylcholine receptor and the chapter by L. M. Amzel and collaborators who are using the F_0F_1ATPase to illustrate these approaches in comparison to direct methods of structure elucidation by X-ray crystallography.

The third section of the book consists of five chapters describing selected experimental methods that offer direct structural information on membrane proteins. Circular dichroism and vibrational spectroscopies for secondary structure determination, with particular emphasis on the special difficulties posed by the presence of the membranes, are thoroughly reviewed in the opening chapter by R. W. Williams. Applications of diffraction techniques are discussed in chapters by W. Kühlbrandt, who reviews the high-resolution electron diffraction methods that have made possible the exciting breakthroughs in structure determination of membrane proteins from two-dimensional crystals, and by J. K. Blasie, who describes a novel technique for the construction of vectorialy oriented protein monolayers on solid substrates suitable for X-ray or neutron scattering studies.

The powerful combination of multidimensional solution NMR of isotopically labeled, detergent-solubilized small membrane proteins with solid state NMR methods is clearly described by S. Opella, but no mention is made of the possible artifacts from detergent solubilization. This section closes with a key chapter by W. L. Hubbell and C. Altenbach that gives an excellent review of the novel and exciting approach of "site-directed spin labeling" in EPR spectroscopy. Spin labels introduced at defined positions in the membrane protein serve to reveal a variety of structural details about the labeled sites, such as their depth within the bilayer, their participation in elements of regular secondary structure, as well as information about intersite distances that are essential in the interpretation and refinement of three-dimensional models of these proteins.

The fourth and final section includes chapters devoted to studies on "simpler" model systems that have proven useful to calibrate and test rigorously the ideas about the nature of the interactions between proteins and bilayers and among the various transmem-

brane structural elements of an individual protein. A clear and succinct overview of the impressively large literature on physical studies of peptide-bilayer interactions, including calorimetry, monolayer surface pressure, and a variety of spectroscopic methods, is given by L. Tamm.

In the following chapter, G. A. Wolley and B. A. Wallace describe the use of gramicidin as a model in the successful interplay between theoretical modeling and experimental structural work and examine it as a test case for the sensitivity of protein structure to the details of its solution environment. The de novo synthetic peptide approach to the study of the structural requirements of voltage-gated ion channels is summarized in a chapter by J. D. Lear, Z. R. Wasserman and W. F. DeGrado. The book ends with a chapter by I. L. Karle, who contributes a thoroughly articulated review of the valuable information about intramembrane chain segment interactions that can be derived from the extremely high-resolution X-ray structures of short natural and model peptides.

The book is successful in mapping out the areas of activity that have provided key insights and still hold the greatest promise of progress in the challenging but tremendously important problem of membrane protein structure. The excellent editorial work in setting clear goals for the book has resulted in very good choices of the areas covered and in a logical and coherent organization of the multi-disciplinary material. A strong point is the successful cross-referencing among the contributions, a useful and albeit uncommon feature of multiauthored volumes.

The chapters are well balanced between clear presentation of technical details and the discussion of representative and illuminating applications. The usefulness of the reviews is further enhanced by thoughtful presentations of the limitations of the various approaches. In a few instances, in which the authors rely heavily on the structural information available at the time of writing, the chapters are inevitably destined to appear less up-to-date as a result of new structures becoming available (e.g., the 2.8-Å resolution structure of cytochrome-*c* oxidase from *Paracoccus denitrificans* reported after the publication of this book). However, this is not an unreasonable price to pay when the reward is solid, critically presented information about a scientific field that is advancing rapidly along several experimental and theoretical paths.

Because of its multi-disciplinary view of the problem of membrane protein structure, and its scholarly approach to the biophysics of an important system, the book should have wide appeal. It is useful both to the specialists in cell physiology and structural biology and to graduate students who are entering the field with a variety of backgrounds. Finally, it is noteworthy that almost every chapter in the book contains a remark about the inadequacy of our current level of knowledge and a plea for more structural data. Sadly, such progress may be endangered by the currently prevailing principles in the support of scientific research that emphasize short-term (short-sighted?) goals. The formidable difficulties and efforts associated with determining the structure of membrane proteins, of which this book is also a reminder, will require the long-term support necessary to generate sustained progress in this fundamental area of biomedical research.

Massimo Sassaroli
Harel Weinstein
Mount Sinai School of Medicine

Fundamentals of Physiology: A Human Perspective (Second Edition)

Lauralee Sherwood
St. Paul, MN: West Publishing, 1995, 672 pp., illus., $65.25
ISBN: 0-314-042272-5

Lauralee Sherwood is also the author of *Human Physiology: From Cells to Systems*, designed primarily for upper-level undergraduate students with strong math and science backgrounds. *Fundamentals of Physi-*

Books Received

Biological Flows. Michael Y. Jaffrin and Colin G. Caro (Editors). New York: Plenum, 1995, 367 pp., illus., index, $95.00. ISBN: 0-306-45206-5.

*Comparative Physiology of the Vertebrate Digestive Systems. (*Second Ed.) C. Edward Stevens and Ian D. Hume. New York: Cambridge University Press, 1996, 400 pp., illus., index, $79.95. ISBN: 0-521-44418-7.

Comprehensive Human Physiology: From Cellular Mechanisms To Integration, Vols. 1 and 2. R. Greger and U. Windhorst (Editors). New York: Springer-Verlag, 1996, 2,527 pp., illus., index, $135.00. ISBN: 3-540-58109-X.

Critical Care Physiology. Robert H. Bartlett. Boston, MA: Little, Brown, 1995, 238 pp. illus., index, $59.95. ISBN: 0-316-08269-4.

Gastrointestinal, Hepatobiliary, and Nutritional Physiology. Eugene B. Chang, Michael D. Sitrin, and Dennis D. Black. Hagerstown, MD: Lippincott-Raven, 1996, 302 pp., illus., index, $42.95. ISBN: 0-7817-0262-3.

Intracellular Protein Catabolism, Vol. 389. Koichi Suzuki and Judith S. Bond (Editors). *Advances in Experimental Medicine and Biology.* New York: Plenum, 1996, 306 pp., illus., index, $89.50. ISBN: 0-306-45201-4.

Oncogenesis and Molecular Biology of Pituitary Tumors, Vol. 20. Shlomo Melmed (Editor). *Frontiers of Hormone Research.* A.B. Grossman (Series Editor). Basel: Karger, 1996, 198 pp., illus., index, $198.25. ISBN: 3-8055-6254-3.

Paradigms of Neural Injury. J. Regino Perez-Polo (Editor). San Diego, CA: Academic, 335 pp., illus., index, $85.00. ISBN: 0-12-185300-4.

Questions and Answers in Medical Physiology. Poul-Erik Paulev. London: Saunders, 1996, 532 pp., illus., index, $25.00. ISBN: 0-7020-2043-5.

Somesthesis and the Neurobiology and the Somatosensory Cortex. O. Franzén, R. Johansson, and L. Terenius (Editors). Boston, MA: Birkhäuser, 1996, 421 pp., illus., index, $113.00. ISBN: 0-8176-5322-8.

Book Reviews

(continued from page 263)

ology is a more condensed treatment suitable for lower-level physiology courses of shorter duration and less depth of coverage.

Students preparing for health-related careers will find this book especially appropriate, due both to the writing style and to features of the book. The second edition has updated content on many subjects, including stroke pathogenesis, molecular mechanisms of memory storage, changes in the myosin head during cross-bridge binding, and recently discovered multiple roles of nitric oxide on the body.

Like most good textbooks of physiology, Sherwood's finds its center in homeostasis, Claude Bernard's great unifying concept from the 19th century, brought into sharper focus by Walter B. Cannon's coining of the term early in the 20th century, and remaining, at the threshold of the 21st century, the crystallizing paradigm for understanding the integrative nature of physiology. However, unlike most text authors, Sherwood gives homeostasis center stage throughout the book by beginning each chapter with a pictorial homeostatic model showing how the new body system being discussed fits in functionally with the body as a whole. Further chapter orientation is provided by an introductory paragraph and a section called "Chapter Contents at a Glance." Each chapter closes with "Chapter in Perspective: Focus on Homeostasis," cementing in the student's mind how the system just discussed is interdependent with others.

A feature students will appreciate is the "Review Exercises" section concluding each chapter, with objective as well as essay questions over the material. Answers are provided in the Appendix. There is also a "Points to Ponder" section, including six thought-provoking questions such as a "Clinical Consideration," a mini-case study promoting application of physiological knowledge to a patient. This is especially relevant for students taking a prenursing course in human physiology.

There are many other features of the text too numerous to mention, but I will refer to two more: a complete glossary and a well-designed color figure series, including some excellent scanning electron micrographs. A colored bullet in the textual material alerts the student to each figure and aids in return to the narrative. Illustrations of humans show both males and females, as well as members of various racial, ethnic, and age groups. This sensitivity to gender, ethnicity, and age is a welcome (and overdue) feature in an undergraduate physiology text.

Some of the best illustrations conceptually are flow diagrams, pioneered by veteran physiologist Arthur Vander in his textbook of physiology and adopted by many in recent years. Ancillaries to the Sherwood text include Learning Resource and Instructor's Manuals, Computerized Test Service, colored transparency acetates, videotapes, and computer software with animations and technical effects.

Missing in this book is a lot of detail and background material. It has purposely been left out in order to concentrate on essentials of physiology for students without strong backgrounds in chemistry and biology. The book should compete well with Fox's *Human Physiology* (W. C. Brown, 5th ed., 1996) or Moffet, Moffett, and Schauf's book of the same name (Mosby-Year Book, 2nd ed., 1993), although both of those books contain more background material and somewhat more in-depth treatments.

David S. Bruce
Wheaton College

Position Available

Instructor or Assistant Professor.
The Division of Cardiology invites applications for a faculty position at the Instructor or Assistant Professor level. The general focus of this position will be to work on myocardial ischemia within the context of a multi-disciplinary team, headed by Roberto Bolli, that includes molecular biologists, physiologists, and biochemists and uses a variety of models (isolated cells, isolated hearts, anesthetized and conscious animals). The successful candidate will have demonstrated expertise in integrated cardiac physiology (whole animal physiology). The focus of the research program will be on myocardial ischemic preconditioning, stunning, and hibernation. Applicants must hold an MD or PhD, have a minimum of three years of postdoctoral training, and be capable of establishing a strong independent research program. Please send curriculum vitae, statement of research interest, and names of three references to: Richard N. Redinger, MD, Professor and Chairman, Department of Medicine, ACB Third Floor, University of Louisville, Louisville, KY 40292. Please refer to PCN 09275. [EOAAE] ❖

Positions Available

There is a $50 charge for each position listed. Positions will be listed in the next available issue of *The Physiologist* and immediately upon receipt on the APS Gopher.

A check or money order payable to The American Physiological Society must accompany the position listing. Purchase orders will not be accepted unless accompanied by payment. Ads not prepaid will not be printed. Copy must be typed double space and is limited to 150 words. Copy must reach the APS office before the 15th of the month, two months preceding the month of issue. Mail copy with payment to:

The Physiologist
APS
9650 Rockville Pike
Bethesda, MD 20814

Ciba Epileptology Prize to be Awarded in 1997

In agreement with the International League Against Epilepsy (ILAE) and the International Bureau for Epilepsy (IBE), Ciba Pharmaceuticals has established a prize to be awarded in recognition of outstanding achievement in the field of epilepsy. A further objective of the prize is to improve the quality of, and foster innovation in, clinical trials and patient care in epilepsy. Through cooperation with both ILAE and IBE, Ciba emphasizes that candidates from all fields of applied research are eligible to apply for the prize, which amounts to 20,000 Swiss francs (approximately $15,800 US).

Entries for the prize are judged by an adjucatory panel consisting of two delegates, each from ILAE and IBE, and an independent chairman.

The Prize was first awarded in 1993 at the International Epilepsy Congress in Oslo and again in 1995 in Sydney. The next award will be at the International Congress in Dublin.

Anyone outside the pharmaceutical industry who considers that he or she has made a significant scientific contribution in the field of epilepsy may compete for the prize. The deadline for submission of entries for the 1997 prize is September 30, 1996.

For further details and application forms, write to G. Haldemann, Executive Secretary, Ciba Epileptology Prize, postfach, CH-4002 Basel, Switzerland. ❖

APS Sustaining Associate Members

The Society gratefully acknowledges the contributions received from Sustaining Members in support of the Society's goals and objectives.

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Scientific Meetings and Congresses

1996

September 5-7
Society of General Physiologists 50th Annual Symposium: Membrane-Cytoskeletal Interactions, Woods Hole, MA. *Information:* Society of General Physiologists, PO Box 257, Woods Hole, MA 02543-0257. Tel: 508-540-6719; fax: 508-540-0155; e-mail: sgp@mbl.edu.

September 20
Fourth Annual Progress in Hematologic Malignancies and Bone Marrow Transplantation, Baltimore, MD. *Information:* Program Coordinator, Office of Continuing Medical Education, Johns Hopkins Medical Institutions, Turner Building 20, 720 Rutland Avenue, Baltimore, MD 21205-2195. Tel: 410-955-2959.

September 24-27
Second World Congress of High Altitude Medicine, Cusco, Peru. *Information*: Fabiola León-Velarde, Universidad Peruana Cayetano Heredia, Dpto. de Fisiologia, Apartado 4314, Lima 100, Peru. Fax: 51-14-482 34 35; e-mail: fabiolv@upch.edu.pe.

October 3-6
Biomedical Engineering Society Annual Fall Meeting, University Park, PA. *Information*: Rita Kline, Bioengineering Program, Pennsylvania State University, 205 Hallowell Building, University Park, PA 16802-6804. Tel: 814-865-1407; fax: 814-863-0490; e-mail: rxk1@psu.edu.

October 7-9
Progression of Renal Disease: Evaluation, Growth Factors, and Other Mechanisms, Montecatini Terme, Italy. *Information*: Claudio Bianchi, Professor of Nephrology, Unita di Nefrologia, Clinical Medica 2, University of Pisa, 56100 Pisa, Italy. Tel: 39-50-592573; fax: 39-50-553414.

October 9-11
Second Ukrainian Congress of Pathophysiologists, Kiev, Ukraine. *Information:* Svetlana Pavlovich, Bogomoletz Institute of Physiology, Bogomoletz St. 4, Kiev 252024, Ukraine.

October 12-15
NAASO Annual Conference, Breckenridge, CO. *Information*: NAASO Conference, Barbara McMurry, Center for Human Nutrition, UCHSC Box C225, 4200 E. Ninth Ave., Denver, CO 80262. Tel: 303-270-4084; fax: 303-270-3273; e-mail: Barbara.McMurry@UCHSC.edu.

October 19
Regional Human Anatomy and Physiology Conference, Georgetown, DE. *Information:* Barbara Wiggins, Delaware Technical and Community College, PO Box 610, Route 18, Georgetown, DE 19947. Tel: 302-856-5400 ext. 217; e-mail: bwiggins@outland.dtcc.edu.

October 20-24
Second World Congress on Alternatives and Animal Use in the Life Sciences, Utrecht, The Netherlands. *Information*: World Congress Alternatives 1996, FBU Congress Bureau, PO Box 80.125, 3508 TC Utrecht, The Netherlands. Tel: 31-30-53-5344/2728; fax: 31-30-53-3667; e-mail: l.donkers@pobox.ruu.nl.

October 23-27
12th Annual Meeting of the American Society for Gravitational and Space Biology, Charlotte, NC. *Information:* Donald R. Beem, AIBS, Special Science Programs, 1444 Eye Street, NW, Washington, DC 20005. Tel: 202-628-1500 ext. 250; e-mail: dbeem@aol.com.

October 28-30
Advances in Pediatric Nutrition, Baltimore, MD. *Information:* Program Coordinator, Office of Continuing Medical Education, Johns Hopkins University School of Medicine, Turner Building 20, 720 Rutland Ave., Baltimore, MD 21205-2195. Tel: 410-955-2959; fax: 410-955-0807; e-mail: rturner@ som.adm.jhu.edu.

November 22
Neural Control of Circulation During Muscular Activity, Rome, Italy. *Information:* Jacopo Legramante, Universita Degli Studi Di Roma tor Vergata, Dipartimento di Medicina Interna, Cattedra Fisiopatologia Medica, Via della Ricerca Scientifica s.n.c.-00173 Rome, Italy. Tel: 7259-4218; fax: 7259-4263.

1997

February 18-22
10th International Hypoxia Symposium: Women at Altitude, Lake Louise, Alberta, Canada. *Information*: Sharon Studd, Continuing Education, Faculty of Health Sciences, McMaster University, Room 1M7, 1200 Main Street West, Hamilton, Ontario, Canada L8N 3Z5. Tel: 905-525-9140; fax: 905-572-7099; e-mail: studd@fhs.csu.mcmaster.ca.

February 22-28
Medical Imaging '97, Newport Beach, CA. *Information:* SPIE, PO Box 10, Bellingham, WA 98227-0010. Tel: 360-676-3290; fax: 360-647-1445; e-mail: spie@spie.org.

April 11-13
International Dermatology Symposion, Berlin, Germany. *Information:* Department of Dermatology, University Medical Center Benjamin Franklin, Free University of Berlin, Hindenburgdamm 20, D-12200 Berlin, Germany. Tel: 4930-8445-2808; fax: 4930-8445-4262.

July 27-August 1
16th International Congress of Nutrition, Montreal, Canada. *Information*: Congress Secretariat, IUNS 97, National Research Council Canada, Building M-19, Montreal Road, Ottawa, ON, Canada K1A 0R6. Tel: 613-993-7271; fax: 613-993-7250.

September 14-20
First International Congress of the International Society for Autonomic Neuroscience, Cairns, Australia. *Information*: Joel Bornstein, University of Melbourne, Parkville Vic 3052, Australia. Fax: 61-3-9344-5818; e-mail: joel@plexus. physiol.unimelb.edu.au.