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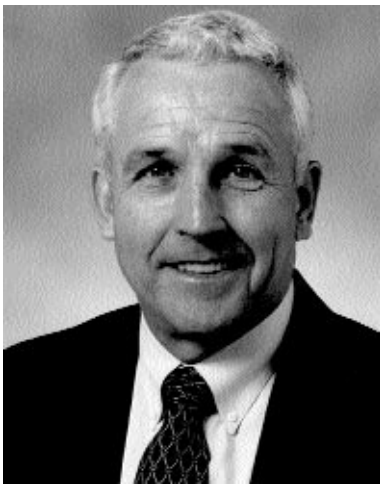
Fostering Science and Science Careers

Donald T. Frazier, Director
Outreach Center for Science and Health Career Opportunities, University of Kentucky

I am most appreciative of the Guyton Physiology Teacher of the Year Award, especially since it is named after Arthur Guyton. It is through his efforts in placing physiology in the hands of so many students that W. B. Saunders Company has seen fit to support this teaching award. As will be immediately obvious by my remarks, I accept this honor on behalf of the many staff and volunteers at the University of Kentucky who are the backbone of our outreach efforts. It is a recognition that I will long remember and cherish. I would be remiss if I did not publicly thank Dan Richardson for nominating me and nominating me and nominating me. In all seriousness, my biggest reward is that Dan felt, rightfully or wrongfully, that my credentials deserved consideration. He could be in front of you in his own right since he is truly a master teacher who has dedicated so much to physiology.

As is often the case, those attending a talk concerning education are often more knowledgeable than the speaker. I am very confident that this is the situation I face tonight. We are all well aware of the importance of a scientifically literate population. Much has been written about the impact that science literacy has on our nation's global competitiveness, development of a technical workforce, environmental decisions, healthcare decisions, and daily consumer decisions.

The corollary to these concerns would be that adequate science training assures improved problem-solving capability of our citizens, informed responses to environment/economy issues, increased financial support for science education, an internationally competitive workforce, and maintenance of an adequate healthcare applicant pool.



Donald T. Frazier

The discipline of physiology, by its integrative nature, is in a unique position to partner with the precollege classroom teacher in bringing excitement and sustained interest in science to students at all levels. We span subject areas from basic structure/function to more modern molecular biology. There is no better hook than the relationship of normal physiology to the diseased state. I am forever amazed at the number of basic physiological concepts that can be introduced under the guise of a very familiar clinical disorder.

For years, various personnel within our medical center had been engaged in individual outreach efforts. We sold the university on the advantages of establishing an Outreach Center for Sci-

(continued on page 139)

Donald T. Frazier received the fifth annual Arthur C. Guyton Physiology Teacher of the Year Award. The following is a speech delivered by Frazier as he was presented the award at Experimental Biology '97 in New Orleans, LA, in April 1997.

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150th APS Business Meeting

Time: 5:15 PM, Tuesday, April 8, 1997
Place: Ernest N. Morial Convention Center, New Orleans, LA

APS President James Schafer

I. Call to Order

The meeting was called to order at 5:21 PM by President **James Schafer**, who welcomed the members to the 150th Business Meeting of the American Physiological Society. Distributed with the agenda was a list of the recipients of APS awards. President Schafer selected **Robert Forster** as parliamentarian.

II. Election of Officers

It was with great pleasure that Executive Director **Martin Frank** announced the results of the election of the officers that was conducted by mail ballot. The membership elected **L. Gabriel Navar**, Tulane University, as President-Elect (April 10, 1997 - April 23, 1998). The two newly elected Councillors are **Dale J. Benos**, University of Alabama at Birmingham, and **Richard J. Traystman**, Johns Hopkins University (April 10, 1997 - April 18, 2000). They will assume office at the close of the Annual Meeting. They are replacing **Diana L. Kunze** and **Heinz Valtin**, who are completing three-year terms on Council.

III. State of the Society

Schafer 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 reflected that APS has undergone five years of rapid change, beginning with the 1992 strategic planning retreat. At that retreat, a strategic goals fund was established to fund the new initiatives coming from the retreat, such as the offices of education and marketing, which were established, and public affairs, which was expanded. Since that time, Council has held a yearly retreat in association with the fall Council meeting to review a portion of the strategic plan and revise it as needed.

In 1994, Council, the Program Committee, and section representatives discussed ways to bring about changes in APS programming for the Experimental Biology meeting to make it an exciting venue for new information at all levels, but with special attention to the integrative aspects of physiology. From various discussions came the Distinguished Lectureship program, the Physiology InFocus program, and the "hot topics" symposia, all of which are enhancing the Experimental Biology meeting.

In 1995, Council decided to review its budgeting methods for reaching the Society's strategic goals. With the Society's current investments in excess of $25 million, Council chose to allocate 4% per annum of those investments to the general operating budget to be used in developing new programs. The recently held Banbury Conference and the resulting "Genes to Health Initiative," the establishment of a blue-ribbon panel to explore ways to get more young people involved in the Society and its programming, and the expansion of the APS Postdoctoral Fellowship Program are among those programs supported by this investment of funds. Also under consideration is a predoctoral fellowship program, which has been referred to the Awards, Career Opportunities in Physiology, Education, and Long-Range Planning Committees for further study.

This past December, for the first time, APS and the Association of Chairmen of Departments of Physiology (ACDP) held a joint meeting at which the challenges to APS and academic departments were discussed. Three major issues were jointly considered: the

APS Past Presidents. Back (l to r): John West, Allen Cowley, Jr., L. Gabriel Navar, Franklyn Knox, Vernon Bishop, Aubrey Taylor, Norman Staub, Robert Forster. Front (l to r): Stanley Schultz, William Dantzler, Ernst Knobil, Leonard Jefferson, James Schafer.

refinement of "integrative-level" research, graduate education in physiology, and outreach programs to improve public understanding of biomedical research. Schafer noted that the dialogue between the two societies will continue, as Council has decided to invite either the president or president-elect of ACDP to the summer Council meeting. In addition, there is the potential of another joint meeting in 1998.

This year, the sections of APS will be reexamined to find ways to revitalize their role in the Society and the programming of the Experimental Biology meeting and the APS Conferences.

Schafer noted that the elected representatives have been concerned with generating ways for APS to help physiologists move into the future. This is being accomplished on four fronts: publications, meetings, awards programs, and new ventures. With regard to initiatives in publications, he announced that the *Journal of Applied Physiology Online* is now up beginning with the October 1996 issue. The *Journal of Neurophysiology* will go on-line in January 1998, with the *American Journal of Physiology* going on-line later that year. On-line access to the *Journal of Applied Physiology Online* will be free until January 1998, and then members can retain access to the APS journals for $49.50. In January 1997, APS began subsidizing the cost of color figures for members ($250/page), and starting in January 1998 free color will be offered to regular or corresponding members in good standing who are either the first or last authors on articles in the *Journal of Neurophysiology*.

New ventures the Society has undertaken include the APS Conferences, which in October 1997 will be on "The Physiology and Functional Diversity of Amiloride-Sensitive Na^+ Channels: A New Gene Superfamily," as organized by Dale Benos. APS will sponsor, beginning in 1998, summer workshops in integrative physiology, the first of which will be on cardiovascular physiology, organized by **William Chilian** at the Medical College of Wisconsin. In addition, APS recently sponsored a conference at the Banbury Center in Cold Spring Harbor, NY, entitled "Genomics to Physiology and Beyond: How Do We Get There?" organized by President-Elect **Allen W. Cowley, Jr**. Schafer invited Cowley to report on the conference.

Cowley noted that the Banbury Conference had been the subject of one of the hot topics symposia at the Experimental Biology meeting. The Banbury Conference consisted of two-and-a-half days of brainstorming by a select group of international physiologists, geneticists, biochemists, molecular biologists, and pharmacologists on how to go from genetics to function. The take-home message to physiologists from the geneticists at the meeting was, "We need you." By the year 2002, geneticists most likely will be finished sequencing the human genome and will have worked themselves out of a job. They are now trying to reach out to physiologists to begin discussions on what they can do with the information they are obtaining. Cowley noted that physiologists cannot wait 10 years to respond to these needs. The outcome of the Banbury Conference was the recognition that physiologists need to become deeply engaged now in efforts to define gene function. A compelling case emerged from the Banbury Conference for a "Genes to Heath Initiative" involving scientists from the US as well as Western Europe and Japan. He noted that more information will be forthcoming on the initiative in the near future.

Schafer emphasized that another area the Society has been involved with and will be more so in the future has to do with education: the physiologist's role in medical education, graduate education, and educational outreach programs. Physiologists must ensure that biomedical information is being integrated from the molecular and cellular levels through the organism level to the clinical level. Physiologists also must become better equipped to teach clinically oriented material and more familiar with various teaching methods. The Society must be involved in finding the answers to whether too many PhD students are being trained, what the future demand will be for individuals with graduate-level physiology training outside of medical schools, whether graduate education represents an underreimbursed cost to medical schools, and whether graduate programs should be evaluated and, if so, by whom. The Society remains extremely involved in educational outreach with the high school science teachers summer research program, the undergraduate faculty enhancement program, and the new Native American Enhancement Program, to name but a few.

Schafer noted the great involvement of FASEB in the arena of public affairs. In the past few years, the original six societies composing FASEB have been joined by five new, full-member societies and just recently by three associate member societies. This has enabled FASEB to speak for a large number of scientists on public affairs issues. The hiring of **Michael Stephens** has given FASEB an experienced public affairs advocate on Capitol Hill, further enhancing its posi-

James Schafer (President) and Allen Cowley, Jr. (President-elect) passing the gavel.

tion as spokesperson for biomedical researchers.

In closing, Schafer stated that he had enjoyed his year as President and was looking forward to continue serving the Society as Past President and working with the new President, Allen Cowley, Jr.

IV. Report on Membership

A. Summary of Membership Status

President-Elect Cowley reported on the status of the Society membership. As of March 10, 1997, the current membership of the Society was 8,410, of which 5,556 were regular, 35 honorary, 1,000 emeritus, 798 corresponding, 21 affiliate, and 1,000 student members. He reported that during this meeting, 79 people were elected to regular membership and 38 people were elected to corresponding membership. In addition, at this meeting, two physiologists were elected to honorary membership: **Pierre Corvol**, INSERM College of France, and **Victor S. Gurfinkel**, Russian Academy of Sciences Institute for Information Transmission Problems. With the addition of these candidates, the Society's membership stands at 8,529.

B. Deaths Reported Since the Last Meeting

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

V. Affairs of the Society

Executive Director Martin Frank thanked James Schafer for working with him this year and for all that was accomplished for the Society.

He commented that at the APS headquarters in Bethesda, MD, there are currently 70 individuals working for Society. Through the staff's efforts, the Society tries to provide information to the scientific community via the Society's newsletter, *The Physiologist*, and its home page on the World Wide Web.

APS Council. Back (l to r): Martin Frank, Heinz Valtin, Diana Kunze, John Williams, Gerald DiBona, Francis Belloni, Edward Blaine. Front (l to r): Leonard Jefferson, James Schafer, Allen Cowley, Jr., John Hall, Celia Sladek, Walter Boron.

Frank reminded everyone of the importance of NetAlert, which is used to notify members of timely animal issues or biomedical funding issues. He urged all APS members to sign up to be on NetAlert and to get in touch with the Society's Public Affairs Officer, Alice Hellerstein, if they have questions. Frank also reminded members that it is incumbent on them to take action on these issues and contact their members of Congress when appropriate.

Frank also mentioned that members can get involved by establishing a chapter. There are currently chapters in Iowa and Ohio and now in Wisconsin. Staff are willing to work with any members interested in establishing a chapter.

Frank announced that the Experimental Biology meeting in 1998, to be held in San Francisco, will be back to a six-society meeting. In addition, he announced that the Microcirculatory Society had voted to join the Experimental Biology meeting for two years beginning in 1998. In 1999 the meeting will be held in Washington, DC, and again it will be a six-society meeting. While a six-society meeting generates much more activity and, unfortunately, the subsequent conflicts, Frank noted that it also generates tremendous excitement and urged everyone to plan to attend future Experimental Biology meetings. He also announced that the American Society for Biochemical and Molecular Biology has committed to participating in the Experimental Biology meeting in 2002.

VI. Awards & Presentations

A. 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 US who have demonstrated outstanding promise based on their research programs.

President Schafer presented the 1997 awards to **Andrea J. Cohen** and **Helen L. Reeve.** Cohen, of the University of Colorado, was selected for her investigation into the mitogen endothe-

lin-1 (ET-1), which appears to be an autocrine growth factor for lung cancer. She will assess non-small cell lung cancer tumors for physiological evidence of an autocrine loop by determining the effects of ET-1 and anti-ET antibodies as well as ET-1 receptor antagonists on lung cancer cell line growth. Reeve is from the University of Minnesota VA Medical Center, and was selected for her investigation of the mechanisms of O_2 sensing in the pulmonary artery and ductus arteriosus with whole cell and single-channel patch-clamp techniques. These techniques will be used to determine whether there is a link between prostaglandins and ion channel activity in the ductus arteriosus.

Each recipient received a $12,000 check for use in her respective research program, a plaque, and reimbursement of expenses to attend the Experimental Biology meeting.

B. Procter & Gamble Professional Opportunity Awards

The Procter & Gamble Company, a multinational, technically based consumer products corporation, provides support for the APS Professional Opportunity 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. Paid registration and $500 checks were given to the awardees.

C. Caroline tum Suden/ Frances Hellebrandt Professional Opportunity Awards

President James Schafer with Giles Filley awardees Helen Reeve (left) and Andrea Cohen (right).

Twenty awards were made possible by the bequests of Caroline tum Suden and Frances Hellebrandt, who were long-time 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 Experimental Biology meeting and paid registration and have access to the FASEB Placement Service. **Kim Barrett**, Chair of the Women in Physiology Committee, presented the awards.

D. National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) Awards

Frank announced that 36 NIDDK awards were presented to minority students to help them attend the Experimental Biology '97 meeting.

E. Recognition of Outgoing Councillors

Councillors Diana L. Kunze and Heinz Valtin complete their terms at the close of this meeting. Schafer 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 **Leonard S. Jefferson**'s last meeting as an officer of the Society, Schafer noted that even though Jefferson was unable to attend the Business Meeting, it was a special pleasure to recognize him for his service to the Society. A plaque honoring his presidency will be given to Jefferson.

President James Schafer with outgoing Councillors Heinz Valtin and Diana Kunze.

VII. New Business

Andre J. Premen, a health science administrator for the Geriatric Program at NIH, announced funding opportunities from the National Institute on Aging for research focused on changes that occur with aging in the cardiovascular, renal, and other systems. The focus of any proposed research should be on clinically related approaches with both humans and animals and include research at the cellular and molecular levels. Premen announced that anyone interested in more information could reach him at 301-496-6761 (fax: 301-402-1784; e-mail: premena@gw.nia. nih.gov).

Schafer then turned the gavel over to Allen W. Cowley, Jr., Medical College of Wisconsin, the incoming President of APS. Cowley stated, "On behalf of all the members Society, I would like to extend an enormous thanks to Jim Schafer for all the efforts you have put in this past year."

In closing, Cowley stated that he was "looking forward to serving the Society as President."

There being no other business, the meeting was adjourned at 6:17 PM, April 8, 1997. ❖

Allen W. Cowley, Jr.
President-Elect

(continued from page 133)

ence and Health Career Opportunities by stating that it would promote science literacy, link those "doing science" with the community, and foster interest in medical research and health-related careers. We argued that, although much was being done, the community perceived that the university was doing very little because there was no coordination of ongoing activities. A centralized facility would have the advantages of increased visibility and public awareness, easy access, one-call shopping, student tracking, coordination of programs, and the establishment of a campus learning center complete with an interactive classroom. We were extremely fortunate to acquire a building perfectly located between the medical center and the student dorms. With a little renovation and the generosity of many units of the university, we outfitted the building and opened for business. Organizationally, the Center sits under the Chancellor of the Medical Center and serves all five colleges (medicine, dentistry, nursing, pharmacy, and allied health). With respect to governance, a steering committee, made up of administrators from each of the colleges and a representative from the public relations office, is charged with the responsibility of institutional accountability. Equally important is the naming of each existing program director to a working committee to plan and implement new and existing programs. We have two state-supported lines, center coordinator and a business manager; all the other personnel (10-12) are supported off grants and contracts.

The Outreach Center decided not to limit our target groups but run the gamut from preschool to professional students, as well as any other interested community group or individual citizen. Our intent was to develop programs and/or motivational exhibits at various levels to first attract and then sustain a student's interest in the health sciences. Programs at the elementary, middle school, high school, and undergraduate levels provide the kind of tracking needed to sustain a student's interest. The Center currently has 10 funded programs: Minority High School/Teacher Research Apprentice Program, Kentucky Appalachian Science Enrichment Program, Health Career Opportunities Program, Bridges to the Future, Professional Education Preparation Program, Brainlink (with Baylor University), Summer Workshops for Teachers, Summer Employment Opportunities, Multi-Level Development, and Experience-Based Career Education. Most of our program support comes from NIH, with the State of Kentucky and private foundations providing the remainder.

The operative mission statements for the UK Outreach Center are:

- Encourage and stimulate interest among students in the study of science, mathematics, and technology and make them aware of the opportunities and career possibilities inherent in these areas.
- Introduce teachers, students, and parents to the relevance of research with respect to the socioeconomic implications embodied in scientific endeavors.
- Coordinate the many medical center educational outreach and career development programs, existing or proposed, in order to increase their visibility and accessibility. At no time was the intent to take over a program, but rather to help amplify its impact.
- Establish communication links between those "doing science" within the university departments and members of the community at large.
- Strengthen the perception that the University of Kentucky is interested in participating and enhancing the learning experience of Kentucky's children.
- Provide a base for the development of cooperative initiatives with the Kentucky Education Reform Act, Rural Health Initiative, Area Health Education Centers, and other entities whose purposes include educational improvement, career development, and access to opportunities for all Kentucky's citizens. It was extremely important that we be knowledgeable of all the other initiatives impacting on the teacher's classroom.

In addition to funded programs, much of our resources goes into nonprogrammatic activities. It is through these endeavors that we have reached literally thousands of students, parents, and interested citizens. These activities are made possible by university enhancement funds as a consequence of our extramural support and include *1)* maintenance of our toll-free science hotline; *2)* onsite tours and field trips by precollege classes; *3)* offsite visits by the Center's mobile classroom to schools and organizations throughout the state; *4)* participation in science fairs as exhibitors and judges; and *5)* development of a speakers program that includes presentations on the following topics: Gross Anatomy Lectures/Lab, How Your Body Works, Health Careers, What's on the Street and Who's at Risk, Alcohol Abuse and Street Drugs, Why Your Child Gets Sick, Infectious Diseases, Genetics in a Clinical Setting, and Diagnosing Cancer with Radiology.

In trying to gauge the success of the Outreach Center efforts, we offer the following statistics. Since the Center was established in 1993, we have interacted with more than 25,000 students through one program or another. Over this same time frame, we have witnessed a marked increase in the number of volunteers. The evaluation instrument that is utilized for each activity clearly indicates that the image of the medical center has been elevated. A more tangible yardstick has been the rapid growth and expansion of programs accompanied by increased financial support. Measurable only by the increased number of faculty wishing to be preceptors is the attitudinal changes we have experienced in all our personnel. By far, the letters we receive from the students and teachers who participate in the

various programs provide the most personal impact. Some excerpts are, "During your visit I liked everything you brought but the brain was my favorite. I now know what it looks like and all that it does for me" and "You are lucky because you get to learn about science up clos [*sic*] and personal....I hope I see you agin." What an endorsement for those seeking an academic career! This next letter is from a teacher to help ease the pain of the committee for selecting me to receive this award. "Thank you so much for the visit with you and staff at the UK Outreach Center! It was by far one of the most interesting, beneficial, and enjoyable trips our class has ever taken! The children were so excited! You are truly a master teacher." I include this letter really to emphasize the impact you may have.

Shortly after this school visited, the center suffered some fire damage, and the story made the newspapers. Upon learning of our troubles, these fourth grade students wanted to help. The teacher, one of Kentucky's best, turned the students' desire into a classroom economic lesson. The kids went to a local bank and borrowed $20.00 to start a store. They divided the responsibilities among the entire class and went into business, selling items at a small profit. Of course, this caught the eyes of the media, and suddenly we had publicity that you could not have orchestrated with the best public relations firm. The students paid off their loan and presented the center with a check for $250. Whereas the preceding was a success story, you must also be willing to *almost* win, as shown by this last excerpt. "Dear Dr. Frazier...thank you for showing us so many interating [*sic*] thing. I like what you do but I think I'll be a mcaniec [*sic*] instead."

Why should we do this? It is as much fun as I have ever had in teaching, and it provides an excellent opportunity for a physiologist to spread the word that science is everybody's business. Thank you so very much for this honor and the opportunity to talk about my favorite subject, science outreach.❖

NIGMS Announces Program Supporting High-Risk/High-Impact Research

The National Institute of General Medical Sciences (NIGMS) recently announced a new program to provide pilot-scale support for potentially groundbreaking ideas, methods, or systems. The goal of this program is to promote research that lacks sufficient preliminary data to establish feasibility but, if, successful, would be likely to have a major, precedent-setting impact on biomedical research. The proposed research must fall within the areas supported by NIGMS, which include basic research on cell biology, biophysics, genetics, developmental biology, pharmacology, physiology, and biological chemistry.

Program Highlights:

- Awards will be made using the R21 mechanism, in amounts not exceeding $70,000 per year in direct costs for a maximum of two years.
- **Application receipt dates are February 1, June 1, and October 1.**
- Applications will be reviewed in NIH Division of Research Grants initial review groups but will not receive percentile scores and will not be included in the base from which the percentiles of other applications are calculated.
- Reviewers will be asked to take into account the NIGMS requirement that the project show "potential for groundbreaking, precedent-setting significance of the proposed research, with particular emphasis on novel and innovative approaches that clearly require additional preliminary data for their values to be established."
- There is no "set-aside" for the program; NIGMS staff will recommend for funding only those proposals clearly meeting the stated requirements.
- The award cannot be renewed. If sufficient data are generated during the term of the award, investigators could then apply for further funding through research project grant (RO1) or other mechanisms.

Complete details on this program are published in the NIH Grants and Contracts as program announcement PA-97-049. The program announcement and additional information for applicants can be found on the NIGMS Home Page at **http://www.nih.gov/nigms/funding/pa/r21.html**. NIGMS contact people for programmatic questions are: James C. Cassatt, Cell Biology and Biophysics, tel: 301-594-0828; Judith Greenberg, Genetics and Developmental Biology, tel: 301-594-0943; and Michael E. Rogers, Pharmacology, Physiology, and Biological Chemistry, tel: 301-594-3827. The NIGMS contact person for fiscal and grants management questions is Carol Tippery, tel: 301-594-5135.❖

Animal Care and Experimentation Committee

This past year has been an active one for the Animal Care and Experimentation (ACE) Committee. A previous issue of *The Physiologist* reported on a Congressional visit I made earlier this year. That report described testimony I provided concerning USDA Animal Welfare Act enforcement. On the same day that the testimony was given, APS Public Affairs Officer Alice Hellerstein and I visited the offices and staff members of several Congressmen to discuss proposed legislation to eliminate USDA-licensed Class B dealers. During our visits, we emphasized that we felt it was important that scientists visit their representatives to provide expert information regarding their work, the necessary and important role that animal use plays in their work, and how continued support from Congress is imperative.

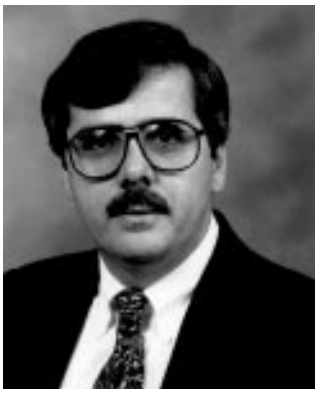
Surprisingly, one staff member stated that, although he supports the use of animals in research, scientists are losing the battle to animal rights advocates. Few scientists take the time to write their representatives when bills are brought before Congress that will impact their ability to use animals in their research (such as the elimination of Class B dealers). This staff member also firmly stated that when scientists do write, they should use emotional arguments as much as possible. Although it does take valuable time to write letters, the ACE Committee strongly recommends that all physiologists do their part to support excellence in research.

The ACE Committee is organizing a symposium October 8 at the National Association of Biology Teachers meeting in Minneapolis. The symposium will be cosponsored by the Applied Research Ethics National Association, which is the professional society for research administrators. This is an important proactive opportunity to educate biology teachers about biomedical research. We are trying to identify speakers who can help teachers find ways to explain animal research and respond to tough questions some students raise.

This year marks the first time that a student member has been appointed to the ACE Committee. Jennifer Laipresert of Ohio State University participated in the ACE Committee meeting in New Orleans and has joined with the rest of the committee in reviewing a number of issues by fax and e-mail. We are looking forward to hearing back from her later in her term about her experiences.

C. Terrance Hawk, Chair

Awards Committee



The Awards Committee received 24 applications for the Research Career Enhancement Award. This award was designed to enhance the career potential of APS members in good standing. The award provides up to $4,000 to individuals in the initial phases of their careers to obtain special training and, in later phases, to develop new skills and to retrain in areas of developing interests. Short-term visits to gain new scientific skills from other laboratories or attendance at special courses devoted primarily to specialized methodologies (e.g., molecular biology techniques workshops) are usually supported by these awards. Applications for the Research Career Enhancement Award may be obtained from the APS offices in Bethesda, MD, and are reviewed twice a year, with deadlines of February 15 and August 15.

In the fall 1996 round of review, five of 10 applications were funded. Awards were made to Adam Sun (Brown University), Chris Ross (Kansas State University), Joseph Barnard (Rush Medical College), Donna Boggs (University of Montana), and Scott Powers (University of Florida). Of the 14 applications received in the spring of 1997, six awards were made to Paul Matherne (University of Virginia), Susan Bloomfield (Texas A & M University), Rolando Ferraris (University of Medicine and Dentistry of New Jersey), Stephen Kempson (Indiana University), Carol Ann Courneya (University of British Columbia, Canada), and Klaus Bielefeldt (University of Iowa). The number and quality of applications for these awards have improved substantially during the past year.

The APS Postdoctoral Fellowship in Mammalian Organ System Physiology recognizes the increasing need to promote training opportunities for integrative physiologists to use molecular biological tools, as well as the training of molecular biologists in the use of organ system approaches. The fellowship brings together trainees and sponsors whose joint project makes use of both organ system physiology and molecular biology. This award is for a two-year period and includes an annual stipend ($30,000) and a trainee allowance ($3,500).

The Awards Committee reviewed 38 applications for the 1997 postdoctoral fellowship. Two outstanding proposals were selected for funding. One award recipient, Sean Kumar, is from Bowman Gray School of Medicine. He will study cell-cell communication in blood vessels in the host laboratory of Brian Duling at the University of Virginia. The second awardee is Jason Glenn Fewell from Florida State University. He will study the role of specific proteins in cardiac function in the laboratory of

Jeffrey Robbins at the University of Cincinnati. Both fellowship recipients will apply transgenic animal models and molecular biological techniques to address problems related to organ system physiology.

D. Neil Granger, Chair

The second printing of the poster "Physiology—A Career for Life" has been completed and the posters distributed. The Career Opportunities in Physiology Committee feels this project is very successful and supports continued distribution of this poster on a biannual basis. The committee suggested that the poster might be redesigned prior to the next mailing in 1999.

Steven L. Bealer, Chair

Careers in Physiology Committee

Career Opportunities in Physiology Symposium

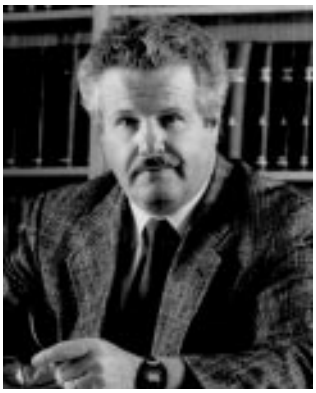
The Career Opportunities in Physiology Symposium was presented at Experimental Biology '97. The symposium was well attended, with the audience ranging between 50 and 120 people. A wine and cheese reception following the symposium provided the opportunity for the audience to obtain information and discuss careers directly with the speakers. This year, speakers were from basic science departments, NIH, a small liberal arts college, the Navy, and the CityLab Program in Boston, MA. Two presentations given by young investigators from basic science departments were directed at the period of transition between the postdoctoral fellowship and assistant professorship, focusing on the demands of these two levels of professional development and on becoming successful in the first professional position. Other speakers discussed career opportunities in a number of venues, including small undergraduate colleges, NIH, consulting firms, government agencies, private industry, and the military. Finally, strategies for changing career direction were presented. The reception following the presentations was a valuable component of the symposium and provided the audience with the opportunity to talk to the speakers.

In an effort to improve the symposium, the audience this year was provided with a questionnaire regarding the symposium and speakers. The responses to this questionnaire will be used for the programming of future symposia. In addition, the committee compiled a list of resources that provide current job opportunities in physiology. This listing included journal titles, brochures, and Internet sites and was distributed to the attendees of the symposium.

The Career Opportunities in Physiology Committee feels this symposium is an efficient and effective avenue for providing information regarding careers in physiology.

Careers in Physiology Poster

Committee on Committees



The Committee on Committees makes recommendations for committee appointments to Council from nominee lists provided by the membership.

During November and December, nominations are solicited from 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, the Committee on Committees receives a list of all nominees and their nomination forms.

By February, members of the Committee on Committees choose their slates 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, and this is recirculated back to the Committee on Committees membership for further evaluation.

At the spring APS meeting, the Committee on Committees 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 the summer or early fall, members are notified of their appointments to committees.

Gerald F. DiBona, Chair

Table 1. Committee on Committees Members

Section	Name and Term Expiration
Chair	Gerald DiBona (98)
Incoming Chair	Celia Sladek (99)
Cardiovascular	James Bassingthwaighte (00)
Cell & General Physiology	Peter Cala (98)
Central Nervous System	Beverly Bishop (99)
Comparative Physiology	Eldon Braun (00)
Endocrinology & Metabolism	Mary Ruh (99)
Environmental & Exercise Physiology	Ronald Terjung (00)
Gastrointestinal	Mrinalini Rao (00)
Neural Control & Autonomic Regulation	William Talman (99)
Renal	William Arendshorst (99)
Respiration	Erik Swenson (98)
Teaching of Physiology	James Norton (98)
Water & Electrolyte Homeostasis	Joey Granger (98)

Table 2. Recommended New Committee Appointments

Section Letter and Name	Number
A **Cardiovascular**	3
B **Cell &General Physiology**	4
C **Comparative Physiology**	3
D **Endocrinology & Metabolism**	2
E **Environmental & Exercise Physiology**	8
G **Gastrointestinal**	4
J **Central Nervous System**	4
K **Neural Control and Autonomic Regulation**	3
L **Renal**	6
M **Respiration**	3
N **Teaching of Physiology**	0
O **Water & Electrolyte Homeostasis**	8
U **Undeclared/unknown**	0
Total	48

10 <45 years old; 39 male, 9 female

Education Committee

Education activities constituted a significant focus of APS efforts during the past year. In the area of continuing education for physiologists, the Education Committee sponsored a refresher course on respiratory physiology at Experimental Biology '97 in New Orleans. 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 lectures by Harold Modell, Jay Farber, and Michael Maron that focused on strategies by which to present the topics within respiratory physiology that are the most challenging for students to learn. The refresher course also included 16 poster presentations, most of which included demonstrations of innovative computer software or audiovisual materials related to the teaching and learning of respiratory physiology. Be sure to look for the refresher course on renal physiology that is being planned for Experimental Biology '98 in San Francisco.

The Society's involvement in pre-college science education continued to grow and evolve during the past year in its *Frontiers in Physiology* project. Using funds from a continued APS investment, grants from NSF and the National Institute of Diabetes and Digestive and Kidney Diseases, and cost sharing from a variety of host institutions, we were able to support a class of 29 middle and high school teachers with 1996 summer research fellowships that allowed them to work in the laboratories of APS members. In addition, the *Frontiers* grant supported a week-long summer institute for these teachers, in which they received more in-depth content exposure, practiced specialized teaching techniques, and developed specific, hands-on, inquiry-based science activities for use in their classrooms.

Moreover, the two model in-service workshops developed under the *Frontiers* grant — *Neural Networks* for middle school science teachers and the *Physiology of Fitness* for high school science teachers — were put into practice by nine Local Outreach Teams (LOTs) at various sites throughout the country. Each LOT was headed by an APS member and also included teachers, science curriculum coordinators, and other APS members. Groups of 20 to 35 teachers from schools near the host university participated in the workshops. Another seven LOTs have been recruited for this year.

The success of the *Frontiers* programs has inspired two new programs based on this model that are commencing in 1997. *Explorations in Biomedicine*, funded by the NIH Minority Access to Research Careers program, will expand APS outreach activities to Native American students and faculty from

reservation schools and tribal colleges in Montana. *Physiology Insights* is designed to provide summer research opportunities for junior college and undergraduate college faculty who have not had extensive prior research experience.

In addition to these activities, two new educational publications aimed at middle and high school students have been developed and are currently available. *The Science of Life* is a brochure, in a "comic book" format, that highlights career opportunities in physiology. *Women Life Scientists: Past, Present and Future* contains biographical information on 20 contemporary and historic women physiologists and biologists, plus scientific information and classroom lesson plans based on their work. The material is suitable for a variety of middle and high school grade levels.

Most recently, the Education Committee has turned its attention to issues related to graduate and professional education. Because of the many new types of physiology courses that many faculty are being asked to teach, the development of new teaching material has become a time-consuming task. In an attempt to ease duplication of effort, we will be beginning a trial project to collect case histories, complete with background information and test questions, in a variety of physiological and pathophysiological areas. We hope to be able to make them readily accessible, such as in a downloadable electronic format.

The Education Committee is committed to finding efficient and effective ways for the Society to serve the education needs of its members. We welcome your feedback on these various programs, and we would especially value your suggestions for new programs and activities that might prove beneficial to our membership.

Francis L. Belloni, Chair

Finance Committee

During the spring meeting of Council, it is the responsibility of the Finance Committee Chair to review the 1996 budget versus actual income and expenses and to present the modified 1997 budget based on the 1996 actual figures. Before the 1996 and 1997 budgets are reviewed, it is important to recognize that the Society continues to be financially sound. Because the APS finances have been well managed, we continue to have the resources to initiate new programs and expand existing ones.

The Finance Committee incorporated in the budget the two changes approved last year: the allocation of 4% of the value of the managed accounts for new and existing program initiatives and the allocation of the General and Administrative (G&A) expenses to each Society cost center based on the ratio of Business/Executive Office expenses to total salary expenses.

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 1996, the year ended with income of $11,623,878 (including $413,521 used from the allocation of 4% of the managed accounts to balance the budget) and expenses of $10,655,704 plus G&A expenses of $958,174 for total expenses of $11,623,878. Based on last year's performance, the revised 1997 budget approved by Council projected income of $13,047,591 and expenses of $11,745,574 plus G&A of $1,032,928, with income over expenses of $269,089.

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, 1996, the accounts had the following market values: Operating Reserve Investment Account I = $6,136,626, Operating Reserve Investment Account II = $7,060,657, Publications Contingency and Reserve Account = $7,751,603, Second Century Program Fund = $1,786,082, Caroline tum Suden Account = $463,655, IUPS Account = $338,893, Perkins Memorial Fund = $246,166, and Giles F. Filley Memorial Fund = $745,688.

During the spring meeting, Council is also asked to consider the Publications and Finance Committees' recommendation for 1998 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. In addition, prices were adjusted to anticipate the on-line publication of the J*ournal of Applied Physiology*, the *Journal of Neurophysiology,* and the *American Journal of Physiology.* With Council's approval, the domestic institutional journal prices will be increased in 1998 by the following percentages: consolidated *American Journal of Physiology* = 15.0%, *Journal of Neurophysiology* = 15.0%, *Journal of Applied Physiology* = 10.1%, *Physiological Reviews* = 15.0%, *AJP: Cell Physiology* = 15.0%, *AJP: Endocrinology and Metabolism* = 12.4%, *AJP: Gastrointestinal Physiology* = 12.4%, *AJP: Lung Cellular and Molecular Physiology* = 15.0%, *AJP: Heart and Circulatory Physiology* = 5.4%, *AJP: Regulatory, Integrative and Comparative Physiology* = 13.3%, *AJP: Renal Physiology* = 7.2%, *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 Finance Committee endorsed the Publications Committee's recommendations for a mandatory manuscript submission fee of $50 for all the individual journals of the *American Journal of Physiology* and for the *Journal of Neurophysiology* and for free color to members publishing in the *Journal of Neurophysiology*, provided they are either the first or last author on the manuscript and that page charges are paid. The Council approved the two recommendations, both of which will be implemented as of January 1, 1998.

The Finance Committee was charged by Council, as were the other committees, to develop innovative ways to use the funds generated by the 4% allocation from the managed accounts for membership benefits. The goal is to develop programs that encourage the participation of young scientists in APS and meet the needs of established investigators. To that end, the Finance Committee recommended that the APS Postdoctoral Fellowship Program be increased to support two fellows per year for a two-year commitment. It also recommended that money be set aside to encourage the establishment of a panel to review potential program enhancements to feature new and emerging areas of physiological sciences and then see that the appropriate workshops, symposia, etc., are supported. Council enthusiastically approved the Finance Committee's recommendations and urged President Allen Cowley, Jr., to establish the first "blue ribbon" panel to continue the Society's current focus on the role of physiology in functional genomics so that the impetus from the recent conference held at the Banbury Center in Cold Spring Harbor, NY, is not lost. Another proposal put forth by the Finance Committee concerning a predoctoral fellowship was sent to various committees for study before Council consideration.

The Finance Committee is also responsible for receiving the annual audit performed by Coopers and Lybrand, LLP. In the opinion of our audit firm, "the financial statements referred to below present fairly, in all material respects, the financial position of the Society as of December 31, 1996, and the changes in its net assets and cash flows for the year then ended, in conformity with generally accepted accounting principles." For the information of the membership, the Society's 1996 Statement of Financial Position and Statement of Activities are provided for review. This information was derived from our completed audit report of December 31, 1996.

Edward H. Blaine, Chair

APS Statement of Financial Position

as of December 31, 1996

ASSETS

Cash and cash equivalents	$ 1,353,678
Investments (net)	28,978,871
Accounts receivable	1,116,629
Accrued interest receivable	192,887
Advances to section editors	203,619
Prepaid expenses	60,092
Furniture, fixtures, and equipment	141,910
Total assets	$32,047,686

LIABILITIES

Accounts payable and accrued expenses	970,235
Amount held for custodial funds	30,630
Unearned revenue	
Subscriptions	5,480,171
Dues and other	220,740
Total liabilities	$ 6,701,776

NET ASSETS

Unrestricted	$24,559,665
Temporarily restricted	773,745
Permanently restricted	12,500
Total net assets	25,345,910
Total liabilities and net assets	**$32,047,686**

APS Statement of Activities

for the year ended December 31, 1996

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Operating Revenue:				
Subscriptions	$ 6,926,917	$	$	$ 6,926,917
Back single issues reprints	1,100,015			1,100,015
Advertising and page charges	1,462,417			1,462,417
Sale of handbooks and royalties	82,279			82,279
Sale of monographs and special publications	1,940			1,940
Membership dues	281,689			281,689
Voluntary contribution and assessment	62,699	116,562		179,261
Conferences and meetings	491,735			491,735
Symposium and program support	8,910			8,910
Grants and contracts	551,417			551,417
Interest and dividends	904,496	34,048		938,544
Other income	22,830			22,830
Net assets released from restrictions	245,239	(245,239)		—
Total operating revenue	$12,142,583	$ (94,629)		$12,047,954
Expenses:				
Program services:				
Publication	9,651,485			9,651,485
Publication special	791			791
Society general	1,022,286			1,022,286
Publication contingency reserve	111,222			111,222
Second century	23,368			23,368
Education	243,974			243,974
Marketing	135,810			135,810
Council designated	767,532			767,532
Total expenses	11,956,468			11,956,468
Change in net assets	186,115	(94,629)		91,486
Net realized gains on investments	1,795,891			1,795,891
Net unrealized gains on investments	987,377			987,377
Change in net assets	2,969,383	(94,629)		2,874,754
Net assets, beginning of year	21,590,282	868,374	12,500	22,471,156
Net assets, end of year	$24,559,665	$ 773,745	$ 12,500	$25,345,910

International Physiology Committee

The proposal to join SatelLife in an effort to make APS databases accessible to physiologists in the developing world, approved by Council last December, is in the process of being implemented. To date, SatelLife has developed a server, GetWeb, that will allow users to access APStracts through SatelLife's international communication network called HealthNet. We have designated the APS component of this effort, APSsat.

SatelLife is in the process of preparing literature describing this new venture for distribution to HealthNet subscribers as well as at the forthcoming IUPS Congress and at the African Regional Education and Training meeting next September. The committee and APS will be represented at this meeting by Kenneth Dormer, a past member of the International Physiology Committee whose travel expenses are being funded, in part, by the Society.

Ernst Knobil, Chair

Liaison With Industry Committee

The Liaison With Industry Committee continues to foster the interaction between APS and physiologists working in industry by encouraging participation in Society symposia, editorial boards, and committee activities. The committee has also defined the guidelines for awards for the best Experimental Biology abstracts by young investigators on integrative biology, especially biological models of disease. We propose that awards be presented to one graduate student and to one postdoctoral fellow. The committee suggests that the awards be recognized at the time of presentation, either by announcement from the chairman of a slide session or by attaching a ribbon to a poster. In addition, the recipients will be invited to lunch or dinner with selected industry members. Multiyear funding is currently being sought. We believe that the proposed awards will give young investigators the opportunity to learn more about the role of scientists in industrial research.

The Liaison With Industry Committee cosponsored two symposia presented at Experimental Biology '97. The committee also sponsored a symposium, "Current Mechanisms of Blood Coagulation Regulation," organized by Stephen Rapundalo that was approved for Experimental Biology '98. In addition, we cosponsored a symposium, "Pleuripotent Effects of TNFa on Insulin Sensitive Tissues," by Jacqueline Stephens from the Endocrinology and Metabolism section that will be on the Experimental Biology '98 agenda.

The Liaison With Industry Committee has received materials from APS Education officer Marsha Matyas that will be available for distribution at local schools by visiting scientists. This information will be made available to any APS member who participates in classroom visits.

The Liaison With Industry Committee believes that our recent initiatives will encourage the active participation of industrial physiologists in APS-sponsored activities. In addition, the committee continues to explore additional opportunities to foster productive interactions between APS and its members who work in industry.

Andrea Ann Seymour, Chair

Membership Committee

The Membership Committee had one round of voting in the spring for regular and corresponding membership, and two additional rounds of voting are planned for 1997. During the fall 1996 and spring 1997 rounds, a total of 219 new members were accepted into the Society. Seventy-one were accepted as new corresponding members. This is almost double the percentage of new corresponding members accepted into the Society compared with last year. Of the new regular members, 73% hold PhD degrees (including 9 individuals with MD and PhD degrees), 18% hold an MD degree, and the remaining applicants hold other degrees (i.e., DVM, MS, DC, etc.). Sixteen percent of the new applicants were postdoctoral fellows, 33% assistant professors, 14% associate professors, 16% professors, and 21% were from research institutions without their titles clearly defined.

A common obstacle during the voting process for corresponding member applications has been evaluating articles from peer-reviewed journals from Asian countries, especially Korea and China. We often are not familiar with the journals listed and must consult with colleagues to determine whether the application is acceptable. To increase the voting efficiency for Asian corresponding member applications, we have requested a list of

all the peer-reviewed research journals from these countries.

Members of the Membership Committee met at Experimental Biology '97. The following is a summary of our conclusions from this meeting.

Dues Reduction Policy

The committee suggested a policy of dues reduction or waiver for members of developing countries who claim they are unable to afford the membership dues. The committee suggested the following course of action for individuals asking for a waiver of membership dues:

- The member must submit a letter to the Membership Committee explaining the need for dues reduction.
- If the letter is approved, a 50% dues reduction will be granted.
- A dues waiver will only be granted for an individual who cannot afford the 50% dues reduction and who provides a reason APS membership is important for him/her.
- Members may not receive a dues reduction or waiver for more than five years.
- Council approval of this policy will be sought at the summer Council meeting.

Increasing Membership

The committee members set forth suggestions to increase Society membership, which were forwarded to the Executive Director and the APS Marketing Department.

To solicit regular membership

- The President of APS should actively encourage all department chairs to join and encourage membership by paying all or some faculty members' dues.
- It is recommended that a tagline be added to the journal mailing sheet for application requests.
- Focus additional solicitation at chapter meetings and from smaller universities.
- Encourage members from other FASEB societies by discounting these individuals' first year of membership. Since the field of physiology provides a foundation for other areas of research, membership in two societies is common and should be encouraged.
- Continue current methods of soliciting new members.

To solicit affiliate members

- Contact biology departments at community colleges and high schools and develop and use promotional material that makes APS look exciting!

To increase young investigator membership

- Provide constant reminders to members to advise their postdoctoral and graduate students to join. Also, it is recommended that student application forms be included in *The Physiologist/NIPS* mailing package.

Sue Amy Shapses, 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 their families to the US to enhance their experiences.

For the June 1996 deadline, the committee received no applications for its consideration.

For the December 1996 deadline, the committee considered three applications for the Perkins Memorial Fellowship Award and recommended approval of all three. Alexander Gourine received the award for January 1997 through December 1998 in the laboratory of Matthew J. Kluger of the Lovelace Institutes. Yair Mandelstam-Manor received the award for January 1997 through September 1997 in the laboratory of Eve Marder of Brandeis University. Krzysztof Narkiewicz received the award for January 1997 through March 1998 in the laboratory of Virend K. Somers of the University of Iowa.

All funds available for the 1996 awards were used. For the award, members are urged to nominate foreign scientists who are visiting their laboratories for an extended time with their families.

Aubrey E. Taylor, Chair

Porter Physiology Development Committee

The Porter Physiology Development Committee, at its meeting in New Orleans, LA, during EB '97, considered the need for improvement in its procedures and considered the following changes in its application guidelines, to become effective June 15, 1997:

- That the Porter Program will discontinue postdoctoral awards.
- That the current stipends for predoctoral fellows are generally lower than similar fellowships from federal agencies. Therefore, the predoctoral stipend was voted to be increased from $12,000 to $15,000

per year. The institutional allowance of $1,500 will not be an automatic portion of the award but will be granted to those institutions who apply for and demonstrate a need for the support.

- That a request be made for the direct annual contribution from the Society be increased from $25,000 to $40,000, i.e., the addition of one fellowship per year.

It was also noted that all copies of the descriptive brochures of the Porter Program had been depleted. It was agreed that the brochure be revised and brought up-to-date for public distribution.

The 10 applications received by the Porter Committee in January 1997 were rated at the EB '97 meeting according to the current guidelines. Notification to the fellows was made in May 1997. Effective with the June 15, 1997, deadline applications, the new guidelines will apply. As is customary, awards to the June applicants will be announced in August 1997.

We are happy to welcome Martha L. Blair and Irving G. Joshua as new members to the Porter Physiology Development Committee. At the same time, we extend our sincere gratitude to Sarah D. Gray and Guido E. Santacana, whose terms expired in December 1996 and whose contributions to the work of the committee were significant and constructive.

We are pleased to report again that the Society contributed $25,000 in 1996 in support of the program. This level of commitment by the membership continues as an important factor in stabilizing the training program and also for cultivating potential external donor interest.

We happily extend our thanks to one of our donors, the Upjohn Company Foundation, for its three-year award to support a Porter Fellow. The award ended in 1995-96. 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 Program. This amount will be augmented by $2,750 from the Porter Foundation as part of its commitment, as described below.

We also express our sincere appreciation to our recent donor, Merck Research Laboratories, for its initial check of $20,000 as the first payment in a five-year commitment to assist in the expansion of the Porter Physiology Development Program and other educational activities of the Society.

The William Townsend Porter Foundation again voted to distribute an additional amount to the Society on the basis of a $1.00 grant for each $2.00 raised by the Society from March 1, 1996, to February 28, 1997, 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 foundation for its generous support and continued commitment to the program.

The Porter Program Announcement and Application was distributed to all departments of physiology and MARC program directors in November 1996 with a deadline date of January 15, 1997, for new and continuation applications. In response, the committee has received four new predoctoral applications and one new postdoctoral application for review. Five continuation/renewal requests were also received from current predoctoral fellows. Final action was taken on these requests during the meeting in New Orleans, LA, on April 8, 1997.

The committee members again served as the review panel for applicants to the National Institute of Diabetes and Digestive and Kidney Diseases Travel Fellowships for Minority Physiologists to attend the Fall Conference and the meetings of EB '97. A total of 72 travel applications were received and rated.

1997-98 Porter Fellows

Jason Hokama (renewal)
Univ. of Arizona Health Sciences

Matthew Walker (new)
Tulane University Medical Center

Kawonia Mull (new)
Meharry Medical College

Trini Vargas (renewal)
University of North Dakota

Rayna Jo Gonzalez (new)
Univ. of Mexico School of Medicine

Maria Leavitt (renewal)
Eastern Virginia Medical School

Dina Paltoo (new)
Univ. of Medicine & Dentistry of NJ

Ignacio Moore (new)
Oregon State University

1996-1997 PORTER FELLOWS

Seven predoctoral fellowships were initiated or continued in 1996-1997, as follows:

Heidi Collins, Department of Physiology
Northeastern Ohio Universities College of Medicine
Advisor: **Stephen E. DiCarlo**

Robert E. Espinoza, Department of Biology
University of Nevada, Reno
Advisor: **C. Richard Tracy**

Maria Leavitt, Department of Physiology
Eastern Virginia Medical School
Advisor: **Gerald J. Pepe**

Jason Hokama, Department of Physiological Sciences
University of Arizona Health Sciences Center
Advisor: **Paul F. McDonagh**

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

Trini Vargas, Department of Physiology
Univ. of North Dakota School of Medicine & Health Sciences
Advisor: **Willis K. Samson**

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

Eleanor L. Ison-Franklin, CoChair

Program and Program Advisory Committees

Experimental Biology '97

EB '97 was held in New Orleans, LA, April 6-9, 1997. 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 Association of Anatomists, American Society for Investigative Pathology, and American Society for Nutritional Sciences. In addition, four guest societies participated: Biomedical Engineering Society, North American Society for Biorheology, Society for Experimental Biology and Medicine, and North American Vascular Biology Organization.

Attendance was quite good. There were 5,844 registered scientists, 1,298 exhibitors, and 451 "other" registrants, for a total attendance of 7,593 persons. Attendance remains a major concern for EB meetings, not only because it reflects the degree of interest by scientists but also because exhibitors, the major source of revenue from these meetings, are encouraged by good attendance.

EB '97 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 and Gene Regulation. 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). This was the fifth year using the thematic format. 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 '97 marked the second Physiology InFocus program. Organized by William Chin, the program topic "Cell Signaling: Multiple Pathways, Integration and Crosstalk" included four half-day symposia scheduled throughout the meeting plus the APS Past President's symposium, entitled "Molecular Physiology of Obesity." Attendance was excellent, and the quality of the sessions was outstanding. Plans have been made to ensure that Physiology InFocus will be a highlight at EB '98, both scientifically and in premeeting publicity.

EB '97 also marked the second installment of Hot Topics symposia. One symposium on the program was selected by the Program and Program Advisory Committees after review of the five proposals submitted in October 1996. This was entitled "Genomics to Physiology: How Do We Get There?" organized by APS President Allen Cowley. Attendance at this session was outstanding, and relevant discussion was heard throughout the meeting.

Of a total of 3,836 volunteered abstracts submitted, 2,072 (54%) came through APS. Of the 3,836 total abstracts programmed, 2,003 (52%) were incorporated into themes. The remaining 1,833 (48%) were presented under the auspices of the sponsoring societies. Of the 2,072 abstracts submitted to APS, 1,310 (63%) were presented as part of the themes, whereas 762 (37%) 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 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 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 topic of the distinguished lecture, tutorial and special luncheons or dinners that feature the Distinguished Lecturer and geared especially to interactions of students and fellows with the Distinguished Lecturer.

Experimental Biology '98

The Program Advisory Committee met on April 6 to discuss and score 42 proposals that had been submitted by the sections, special interest groups, committees, and guest societies. The work is carried out in the manner of a study section and was facilitated through Linda Allen's preparation of a spiral-bound volume and through procedural guidelines that had been formulated by the committee a year earlier. On April 8, the Program Committee fine-tuned the recommendations of the Program Advisory Committee by selecting the following sessions for presentation at EB '98. Twenty-two symposia, one refresher course, and one dramatic course (sponsored by sections or interest groups) were approved. Five symposia sponsored by guest societies (three Biomedical Engineering Society, one Society for Experimental Biology and Medicine, and one Chinese Physiological Society) also were approved.

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 reviewed this year showed this awareness. A sentence reminding applicants of this matter has been added to the application form for

proposals.

Up to three additional Hot Topics symposia will be programmed from proposals received this coming October. Hot Topics proposals will again be reviewed for true "hotness," ranked, and recommended to Council, which will review the slate of Hot Topics proposals by mail ballot in November 1997.

The 1998 Physiology InFocus program will include four sessions and is entitled "Genomics to Physiology and Beyond," organized by Cowley and Francis Collins.

Sponsoring societies will include APS, American Society for Pharmacology and Experimental Therapeutics (ASPET), American Society for Investigative Pathology, American Society of Nutritional Sciences, American Association of Immunologists, and American Association of Anatomists. Guest Societies will include Biomedical Engineering Society, Society for Experimental Biology and Medicine, the Chinese Physiological Society, and Microcirculatory Society.

The number of participating societies and, possibly more importantly, the participation of those societies with which APS has greatest scientific affinity will be a growing problem as we approach the year 2000. For example, the absence of American Society for Biochemistry and Molecular Biology, American Society for Cell Biology, Biophysical Society, and ASPET has been unfortunate, but American Society for Biochemistry and Molecular Biology and ASPET have announced their intention to rejoin the EB meetings in future years. While outstanding science is probably the main factor that will keep major societies at the EB meetings, or will bring them back to those meetings, Council continues to discuss this problem to come up with innovative solutions.

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 still have to solicit proposals. Scheduled APS Conferences include:

- 1997 APS Conference. October 29-November 1, Park City, UT. "The Physiology and Functional Diversity of Amiloride-Sensitive Na^+ Channels: A New Gene Superfamily," organized by Dale Benos.
- 1998 APS Conference. September 16-19, Augusta, GA. "Endothelial Regulation of Vascular Tone: Molecular to Integrative Physiology," organized by David Pollock.
- 1998 APS Conference. December 5-9, San Antonio, TX. "The Paraventricular Nucleus of the Hypothalamus: A Crossroads of Integrative Physiology," organized by Joseph R. Haywood.
- 1999 APS Conference. The conference approved at EB '97 was "Determinants of Vigilance: Interaction Between the Sleep and Circadian Systems," organized by Allen Pack.

Ethan R. Nadel, Chairman

Public Affairs Committee

The 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 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.

In November 1996, FASEB held a consensus conference to make recommendations for federal funding of biomedical research in fiscal year 1998 beginning Oct. 1, 1997. Following nonbinding Senate resolutions by Sen. Connie Mack (R-FL) to increase the NIH appropriation in steps so as to double it in five years, by Sen. Phil Gramm (R-TX) to double it in 10 years and by Sen. Arlen Specter (R-PA) to increase it next year by 7.5%, there was considerable political maneuvering within FASEB to propose a comparably large increase for FY 1998. Thus, FASEB chose to endorse NIH director Harold Varmus' professional judgment budget of a 9% increase for FY 1998.

The FASEB consensus conference recommended a 7.1% increase for NSF, and the House has passed a 7.2% authorization ceiling. This is a helpful vote of confidence, but the authorization ceiling provides the agency only with the authority to spend money. The funds themselves are provided through the appropriations process, where NSF's prospects are more uncertain.

The recent "budget deal" between President Clinton and the Republican leadership of the House and Senate has a number of "protected priorities," including education and highways, but not biomedical research. This is not favorable for NIH or NSF because it appears to circumvent the usual procedure by which the overall budget total is divided among the 13 Appropriations Subcommittees, the so-called 602(b) budget allocations. This means that our strong advocates in the House and Senate may not have as much influence this year as previously.

At the time this is being written (early June), the discre-

tionary budget looks very tight, with the only meaningful increases being in the "protected priorities" of the budget deal. However, the budget process will not be over until September (if then), and it is possible that additional funds may be found.

APS and FASEB have been active in the effort to improve merit review at NIH. Basic scientists have been advocating that "creativity" be added to the criteria for reviewing grant applications. The new criteria for evaluating grant applications are significance, approach, innovation, investigator, and environment. It is hoped that the new "approach" criterion that replaces "feasibility" will lessen "nitpicking" by study section reviewers. "Innovation" is the outcome for including creativity. Another issue was to continue to have study section members vote an overall score for an application rather than a formula-based weighting of scores for separate criteria, and this has been retained.

Federal oversight of research integrity continues to be a concern. The Ryan report from last year that recommended a faulty redefinition of scientific misconduct has not been adopted. Hopefully, the established National Academy of Science criteria of fabrication, falsification, or plagiarism will remain as the definition. The two major cases considered by the Office of Research Integrity (ORI) have been overruled by subsequent careful reviews. The Imanishi-Kari and Baltimore decision was found to be faulty, as was the Bernard Fisher finding by ORI. Some observers are now suggesting that ORI be abolished and that its functions be returned to the Office of the Inspector General, where there would be a better understanding of legal proceedings and the presumption of innocence. Of course, the primary responsibility for investigating charges of scientific misconduct lies with the university or research institute involved.

APS and FASEB have been advocating a revision of the way that vivarium costs for animal care are charged to research grants. The basic proposal is that investigators would be charged for the purchase and daily husbandry of animals as a direct charge to their research grants, but overhead and amortizing the vivarium facility would be a cost recovered by the university in the indirect facilities and administration category. In other words, the animal research facility would be treated like a laboratory research facility. The aim is to have a uniform policy for all institutions throughout the country.

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

Eric O. Feigl, Chair

Publications Committee

In 1996, Council, upon the recommendation of the Publications and Finance Committees, approved several policy changes that affected the publication program significantly, *1*) The journals should generate 10% more income than expenses, and each journal should be self-sufficient. (Because 1997 prices had already been set, the policy took effect with the setting of the 1998 prices.) *2*) A general and administrative expense should be allocated to the Publications Department that includes a percentage of the expenses from the Business Office and from the Executive Director's office. *3*) On-line access to the journals should be included with the print subscription, and the cost will be incorporated in one subscription price (as on-line access becomes available). *4*) The Publications Department should be paid for membership-benefit journals. *5*) The Publications Department no longer needs to budget a contingency reserve.

Journal of Applied Physiology Online

The Society had signed a contract with Online Computer Library Center, Inc., in 1995 to publish the *Journal of Applied Physiology* (*JAP*) on-line, but because the company could not meet the terms of the contract, the vendor was changed to HighWire Press which handles the on-line access for *Journal of Biological Chemistry*, *Journal of Clinical Investigation*, *Science*, and several other prestigious journals in the biomedical field. The switch to HighWire delayed getting *JAP* on-line by a year, but the *Journal of Applied Physiology Online* was successfully launched by HighWire on the World Wide Web in April 1997, with access back to October 1996. *JAP Online* is a fully browsable and searchable database, with full text of articles in both Hypertext Markup Language (HTML) and Portable Document Form (PDF) (for printing articles in journal format); advance, current, and past tables of contents; access to the Medline database of abstracts; and easy retrieval of related articles. *JAP Online* will be accessible to the public until the fall, at which time it will remain available only to *JAP* print subscribers and APS members through a password access system. In 1998, on-line access will be included with print subscriptions and will be provided to members for an access fee of $49.50. This member access fee will provide members with access to all APS on-line journals as they become available. The next journal to go on-line is the *Journal of Neurophysiology*, closely followed by the *American Journal of Physiology.*

Subsidized Color

In January 1997, subsidized color (@$250/figure), if warranted scientifically, became available to authors in all the APS journals when page charges are paid. There has been an enthusiastic response to the subsidy, and the number of color figures published in the journals has increased by 69% compared with the first six months of 1996. In 1998, the committee is conducting an experiment whereby members of the Society in good standing (first or last author) can publish free color in the *Journal of Neurophysiology* if the color is warranted and page charges are paid. The committee hopes eventually to extend this offer to the other journals.

Appointments/Reappointments

Two new editors, Kim E. Barrett and John E. Hall, took office in 1996 for *AJP: Cell Physiology* and *AJP: Regulatory, Integrative and Comparative Physiology,* respectively. One new editor was appointed (Martin F. Kagnoff, *AJP: Gastrointestinal and Liver Physiology,* to start July 1, 1997), and three editors were reappointed (D. Eugene Rannels, *AJP: Lung Cellular and Molecular Physiology;* Walter F. Boron, *Physiological Reviews;* and John E. Remmers, *Journal of Applied Physiology*). Thomas E. Andreoli was appointed editor of the Physiology in Medicine series, which is to be published in the *American Journal of Medicine.*

Mandatory Submission Form

A mandatory submission form was introduced in January 1996 that requires the signatures of all authors attesting to authorship responsibilities, transferring copyright, and revealing any conflict of interest for publication in the acknowledgment section. The form is now being used by approximately 95% of authors, but staff are still having problems with missing and obviously forged signatures. A forged signature in 1996 led to a serious duplicate submission problem that resulted in an author being banned from submitting papers to APS journals for two years. The reasons for missing signatures have included the following: the coauthor "does not know his/her name was put on the paper, so just take it off," "is in jail," "is on a pilgrimage," "has joined the Peace Corps," "has disappeared," "has gone back to his own country," "is retired," "is not speaking to me anymore," and "did not really do any of the research." At the request of the committee, staff are revising the form to emphasize that submitting authors cannot sign for coauthors and page charges must be paid. A more comprehensive checklist is being added that must be checked by the submitting author, and manuscripts will not be accepted for submission unless requirements have been met.

Manuscript Submission Fee

The committee, with the approval of Council, has initiated a manuscript submission fee ($50) beginning in January 1998 for the *American Journals of Physiology* and the *Journal of Neurophysiology*. This is a processing fee, not a reviewing fee, and is nonrefundable. Payments must be made at the time of submission in US dollars only by money order, check drawn on a US bank, credit card, or institutional purchase order.

Centennial of the *American Journal of Physiology*

Plans for the celebration of the centennial of the *American Journal of Physiology* are proceeding as outlined in the April issue of *The Physiologist*. It was noted that the *Journal of Applied Physiology* is celebrating 50 years of publication and the *Journal of Neurophysiology* 60 years in 1998, and these landmarks will also be noted by special articles in the journals and anniversary covers.

Red Sage Project

Because this three-year project provided only limited information on the utilization of electronic journals, the Society decided to allow the University of California at San Francisco to retain the current three-year database of the *American Journal of Physiology* and *Journal of Applied Physiology* but to allow no further input.

Ethics Policy

The committee proposed to impose stricter penalties on authors who have been found guilty of plagiarism, fraud, or duplicate publication or submission. Penalties may include bans on further submission to APS journals and reports of the violations to the offender's institution. However, before implementing the new policy, the committee recommended to Council that a more formal procedural policy be developed to guide them in handling these cases. Council decided that the Executive Committee of Council must approve disciplinary actions and the entire Council must be involved in discussion if there is an appeal of this action made by an author. It was noted that the number of serious misconduct cases is increasing and dealing with them is very time-consuming for the committee. It was recommended by Council that legal counsel should be sought in cases involving disciplinary action. A statement of reviewer's responsibilities regarding the need to report possible fraud or duplicate submission was recommended for inclusion in the editor/associate editors' letters to reviewers

Modeling in Physiology

After receiving input from the editors of APS journals on the need for a separate editor's office to review modeling papers, the committee decided that most *American Journal of Physiology* journals now have associate editors or reviewers competent to review modeling data and that the Modeling in Physiology section should be phased out when the editor's term expired in June. The phase-out was discussed with the editors, and **Mary Anne Farrell-Epstein** agreed to serve as advisor and make available to the editors her excellent database of reviewers for modeling papers. She will work with the production manager to reword the instructions for authors and publish an announcement in the journals.

Membership Survey

Members of the senior staff of the publications department helped develop a membership needs survey. Preliminary reports show that the journals of the Society are highly regarded, including *News in Physiological Sciences,* which has become a valued membership benefit as well as having a healthy subscription base of its own.

Editor's Retreat

An editor's retreat was held in the spring of this year to discuss current problems and future directions of the journals. The committee was particularly concerned with controlling the size of the journals because of the increased cost of publication that is not matched by an increase in subscriptions. Financially, both the *American Journal of Physiology* and the *Journal of Neurophysiology* suffered deficits in 1996, some of which was due to the effort to reduce the backlog of manuscripts but also, in the case of *Journal of Neurophysiology*, because of a 17% increase in submissions.

The editors and the committee agreed to page caps for the journals that allowed for the current backlog and some future growth. The editors discussed methods to operate within these caps by increasing their rejection rates through higher standards for originality and importance of results, experimental design and quality of data, and clarity of presentation. They will also encourage authors to avoid redundancy and present their findings more succinctly. The implementation of a manuscript submission fee in 1998 should also help to prevent the resubmission of rejected manuscripts to the same journal as well as other APS journals. With the implementation of these measures, the Publications Department hopes to be able to predict publication costs more closely and set subscription prices that are more realistic and cover costs.

Books

One handbook was published in 1996, *Exercise: Regulation and Integration of Multiple Systems* (Editors, John T. Shepherd and Loring B. Rowell, 848 pp., price $195, APS members $126.75), and two have been published so far in 1997, *Comparative Physiology* (Editor, William H. Dantzler, 1872 pp., price $325.00, APS members $211.30), and *Cell Physiology* (Editors Joseph F. Hoffman and James D. Jamieson, 1008 pp., price $195.00, APS members $126.80). One book was published in the History Book Series, *Respiratory Physiology: People and Ideas* (Editor, John B. West, 340 pp., price $85.00, APS member price $55.25).

Council accepted the committee's recommendation to discontinue the Clinical Book Series because sales for the series have been very poor and it has been difficult to maintain a steady flow of published books. Council also approved the appointment of Gordon Shepherd as editor for a third edition of the Nervous System handbook, which would contain several volumes. To expedite the series, APS and Oxford University Press (OUP) agreed to provide funds jointly for secretarial help for Shepherd.

In 1996, the book program provided $50,000 in income from royalties from the sale of books published before 1990 by APS and royalties from books published jointly with OUP since that time. Under the agreement with OUP, once books and editors have been approved by the three book committees (Handbook, History, and Technical) and approved by Council, OUP bears all production costs.

Conclusion

It takes many people and a great deal of effort to produce and deliver the 36,000 printed pages that appear annually in the APS journals. These dedicated and hardworking people include the editors and associate editors who oversee the review process, the reviewers who give their time and expertise, the APS staff who process the 7,000 submitted manuscripts that appear on their doorstep each year, the copyeditors and production staff who prepare the accepted manuscripts for publication, the APS subscriptions staff who handle subscriptions and mail out the journals, and the business office staff who handle the thousands of financial transactions involved in the publications process. I thank them all on behalf of the Society.

I especially want to thank the members of the Publications Committee and Past President James Schafer, who dealt with a series of thorny ethical problems and made some significant decisions that will affect the future of publications. Also, I wish to express my appreciation to Laurie Chambers and Martin Frank for their efforts in helping to launch our first journal successfully on-line. Finally, I am especially grateful to Brenda Rauner, who oversees the whole operation, does the impossible job of trying to satisfy everyone, and makes it possible for me to carry out my own responsibilities.

Leonard R. Johnson, Chair

Section Advisory Committee

The Section Advisory Committee (SAC) met on April 6 at EB '97. The primary areas of discussion included *1*) a report from each of the sections, *2*) a review of recent Council activities, *3*) a review of the primary functions of SAC, as outlined in the APS Operational Guide, *4*) ways that SAC might better perform its overall mission, and *5*) plans for the retreat for SAC and Council in October 1997.

For some sections, the EB

meeting provides an important vehicle for presenting their research. Other sections, however, face greater competition from specialty meetings where many of their members present their best work. Also, there is great variability in the sections' participation in submitting symposia and suggestions for the EB meeting and in submitting proposals for APS conferences. There was a general consensus that we should use the fall retreat to develop a strategic plan for strengthening the sections and increasing their participation in various APS activities, especially in developing scientific programs. Past President James Schafer and President Allen Cowley were invited to attend part of the SAC meeting to provide their perspectives on SAC and section activities. Both stressed the need for the sections to increase their involvement in programming and in attracting the best young scientists to attend the EB meetings.

Review of the Functions of SAC

We reviewed the primary charge of SAC, as outlined in the *APS Operational Guide*. It was generally felt that SAC has adequately performed some of its assigned activities but that additional emphasis should be placed on the role of SAC in assisting the Program Advisory Committee in organizing scientific meetings and in interacting with the Long-Range Planning Committee. Also, consideration should be given to redefining the role of SAC and the development of optimal interfaces between SAC and the Program Advisory Committee, the Long-Range Planning Committee, and Council. The sections are the scientific backbone of APS, and mechanisms should be developed to ensure that young scientists who are not yet in leadership positions are actively involved in developing the scientific programs of APS.

Fall Retreat

There was considerable discussion about the agenda items that should be included for discussion at the fall retreat. It was generally felt that the agenda should be aimed at strengthening the sections, especially in their programming activities. Also, we reviewed a compilation of comments received from Council members and section chairs regarding their perception of the current activities of the sections and ways to strengthen the sections. Some of the general areas that were discussed included the following.

Section governance. The possibility that there should be a uniform steering committee structure in the different sections was extensively discussed. Also, the question was raised about whether there should be an "operator's manual" for each section, detailing the purpose of each section, the responsibilities of the members of the steering committee, and deadlines for various activities.

Membership. There was general agreement that the sections need to develop strategies to attract the best young scientists to APS. This, of course, is closely intertwined with the development of outstanding scientific programs that will likely serve as the primary vehicle for attracting the best scientists to attend APS meetings. Currently, it is difficult for some sections to develop a strong identity because of close ties of the members to specialty societies. In order to compete favorably with specialty societies, the sections should identify and provide unique services to section members and develop scientific programs that are attractive to young investigators. One possible way of getting more input from young, talented investigators is to invite a selected group to attend the fall SAC/Council retreat.

Finances. The increased financial support of the sections by APS has encouraged additional section activities. However, one of the problems faced by many of the sections relates to funding of the events surrounding the distinguished lecturers. There was discussion of the possibility that sections should take more responsibility in raising external funds to aid in their award programs and to subsidize cost of the section dinners for students and postdoctoral fellows. Some of the sections have already developed special accounts to fund their activities.

Communication between sections. There was clear agreement that it would be helpful to discuss at the retreat what makes some sections more effective than others in programming, section governance, attracting new members, and other activities. Better communication between sections would be facilitated by *1*) each section providing a written report to be distributed to the members of SAC prior to the annual meeting and *2*) each section, with the help of APS staff, developing a Web page that contains its newsletters and other information about section activities.

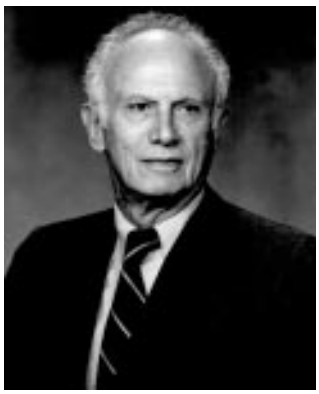
New sections and/or new names for existing sections. There was discussion about the possibility that creation of new sections might be a good mechanism for increasing membership, particularly in areas such as genetics. Also, there was some discussion whether some of the section names adequately reflect the interest of the members.

Conclusion

We expect that many of these issues will be addressed in the October retreat. In addition, other suggestions for agenda items will be solicited from section leaders and APS Council prior to the retreat. The retreat should provide an excellent mechanism for developing a strategic plan that will not only better define the role of SAC but also strengthen the different APS sections.

John E. Hall, Chair

Senior Physiologists Committee



A major responsibility of the Senior Physiologists Committee is to correspond with members of APS 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 166 members were sent letters. In the past year, 43 responses to these letters have been received.

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

Robert M. Berne, Chair

Women in Physiology Committee

The charge of the Women in Physiology Committee is to identify the needs of the female membership of the Society and to foster the professional development of women physiologists at all levels. One of our major responsibilities is to promote the discipline of physiology as a rewarding career to young women and to encourage their active membership and participation in the Society. In pursuit of these goals, the committee oversees a mentoring program for women physiologists at formative stages of their career and a mentoring workshop at the annual Experimental Biology meeting.

The mentoring program, established in 1995, has clearly struck a chord among our younger female membership. The program has grown by more than 30% in the last year alone, and more than 200 mentors and mentees are now signed up as participants. Mentor-mentee matches are made for a one-year period, during which time the pairs communicate by phone, letter, and, increasingly, e-mail. Personal meetings are also encouraged, especially in the context of the Experimental Biology meeting. Every pair is different, but in general, mentors offer advice on career development strategies, scientific issues, balancing the demands of career and personal life, and grantsmanship. The committee, with the invaluable assistance of APS Education Officer Marsha Matyas, is constantly reviewing feedback on the program from participants, who report several benefits from their involvement. Members of the Society (of either gender) are encouraged to participate as mentors and to invite their junior female colleagues (students, postdoctoral fellows, or junior faculty) to do so as mentees. Enrollment forms are available from the APS Education Office. An annual workshop and reception is also sponsored by the committee at the Experimental Biology meeting to further encourage networking. This year in New Orleans we heard inspiring comments from Helen Cooke, Professor of Pharmacology at Ohio State University, who discussed some of her career successes and the obstacles, both personal and professional, that she overcame in reaching them. Matyas also gave a brief update on the status of the mentoring program.

The committee also serves as the review panel for the Caroline tum Suden/Frances Hellebrandt Professional Opportunity awards and administers these awards according to procedures established by Council. These monetary awards ($500), which also provide complimentary registration to Experimental Biology and the career placement service, are made to graduate students and postdoctoral fellows, of either gender, based on the scientific quality of their abstracts submitted to Experimental Biology. Eighty-one applications were received this year, and 20 recipients of the awards were selected on the basis of their exceptional abstracts. The awards were presented to the successful applicants at the APS Business meeting held during Experimental Biology.

Finally, Kim E. Barrett represents APS on the committee charged with selecting the FASEB Excellence in Science awardee. The committee reviewed 14 outstanding female applicants from all scientific disciplines, and after much discussion Eva Neer of Harvard University (and a member of ASBMB) was selected to receive the 1998 award. All nominees, however, had superlative records of research, mentoring, teaching, and service. Historically, APS members have not been strongly represented among the nominees. This was again the case in this year's review, with only one nominee being an active member of APS. The development of a competitive dossier is a time-consuming process but one that certainly brings prestige not only to the awardee but also to APS and the discipline of physiology as a whole. APS members are therefore encouraged to identify women members who might be nominated for the award, which carries a substantial unrestricted research grant as well as the opportunity to present a plenary lecture on one's work at one of the FASEB annual meetings. Members are also invited to contact the committee chair for advice regarding strategies for preparing a competitive nomination dossier.

Kim E. Barrett, Chair

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.

President James Schafer was pleased to announce that the recipient of the 1997 Ray G. Daggs Award is **John T. Shepherd**.

John Shepherd grew up in Northern Ireland and graduated from Queens University in 1945 with an MB and BCh (Bachelor's degrees in Medicine and Surgery). He went on to obtain his MD from Queens University in 1951 and a MCh (Masters degree in surgery) in 1948.

Shepherd started research on the peripheral circulation along the lines of Sir Thomas Lewis, publishing his first paper in 1950 in *Clinical Science* on responses of finger blood flow to cold stimulation. This was the nucleus from which he has built a distinguished research career in circulation. He spent 1953-1954 on a Fulbright Scholar Award with Earl Wood at the Mayo Clinic learning advanced cardiac research techniques and returned to Belfast to take up a readership in physiology at Queens University. He was awarded a Doctor of Science degree there in 1956. In 1957, he accepted a permanent appointment at the Mayo Clinic and Foundation and has remained there ever since.

Shepherd has published more than 100 original papers in cardiovascular physiology, has written seven well-known books on the physiology and clinical aspects of the circulatory system, and has trained many younger investigators. He was Director of Education at the Mayo Foundation from 1977 to 1983.

After coming to the US, Shepherd rose administratively in the Mayo Medical School organization, becoming Professor of Physiology in 1962, Chairman of the Department of Physiology and Biophysics in 1966, and a member of the Mayo Foundation Board of Trustees in 1969. He assumed other high administrative posts thereafter, such as Director of Development.

Shepherd has done yeoman's service for the Society, on editorial boards and particularly in following Knut Schmidt Nielsen as chief editor of *News in Physiological Sciences*, establishing it as a strong international voice of modern physiology. The respect he has earned from his colleagues in the Society is shown by his election as Chairman of the Circulation Group and by being given the group's Carl J. Wiggers Award. He has also served on the Committee on Committees and the Public Affairs Committee.

Daggs Awardee John T. Shepherd with APS President James A. Schafer.

Shepherd has reflected distinction on the Society in the broad and more public field of physiological science and its applications in medicine. He was selected as president of the American Heart Association and continued to serve on many of its committees. Undoubtedly acquired from Earl Wood, his early interest in the space program, particularly in the circulatory effects of acceleration and zero gravity on humans, has kept up, as he is on NASA's Medical Advisory Board and served as a member of the Space Science Board of the National Research Council.

In addition, Shepherd has been and is an outstanding ambassador for international physiology; has lectured and has been honored in many foreign countries; is a leader in international cardiology and angiology, spreading the good word abroad; and is a member of the Commission of Cardiovascular Physiology of the International Union of Physiological Sciences.

Shepherd has been long working in the trenches for our Society, not always at the board room level, and is recognized as a leading physiologist in and outside our ranks. For these unusual efforts, John T. Shepherd was chosen to receive the Ray G. Daggs Award.

In accepting the D Shepherd noted, "Senator Hubert Humphrey used to say that nothing beats a good introduction, so I need to be careful here after that one. It is a privilege to receive the Daggs Award, and I am pleased to follow in the footsteps of Franklyn Knox, a colleague at Mayo." Shepherd spoke of how fortunate the Society has been in its three Executive Secretary-Treasurers: Ray G. Daggs, Orr E. Reynolds, and now Martin Frank.❖

APS President James Schafer presents Bowditch Award Lecturer David Wasserman with a certificate of appreciation.

President James Schafer thanks Cannon Award Lecturer Ernst Knobil during EB '97 in New Orleans, LA.

Call for Nominations: The 1999 Henry Pickering Bowditch Lecture

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.❖

Call for Nominations: The 1999 Walter B. Cannon Memorial Lecture

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 physiological 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-elect 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 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.❖

Predoctoral Students Win Procter & Gamble Professional Opportunity Awards

Once again, APS has been able to recognize the valuable contributions of predoctoral students to the science of physiology, as a result of a generous contribution provided by the Procter & Gamble Company. Students apply for the Procter & Gamble Professional Opportunity Award through one of the 12 sections of the Society. Selection of the awardees is made by the sections, and the number of awards each section makes is based on the number of applications submitted. Seventeen awardees were selected to attend EB '97 in New Orleans, LA. Each awardee received $500, a certificate of recognition, and complimentary registration for the EB meeting. They were presented their awards at the APS Business Meeting at EB '97. Awardees were:

Procter & Gamble awardees. APS Business Meeting at Experimental Biology '97 in New Orleans, LA.

Cardiovascular Section
Shila Jalali, University of California at San Diego
Andrew R. Lange, Medical College of Wisconsin
Brian P. Lipton, Louisiana State University Medical Center
Gregg S. Potter, Michigan State University
David S. Weber, Medical College of Wisconsin
Charles R. White, Loma Linda University

Cell & General Physiology Section
Brian H. Derrickson, Duke University Medical Center

Central Nervous System Section
Alejandro Terrazas, University of Arizona

Comparative Physiology Section
Stephen P. Roberts, Arizona State University

Endocrinology & Metabolism Section
Wendy W. Dippel, Texas A&M University

Environmental & Exercise Physiology Section
Todd Samelman, University of South Florida

Gastrointestinal Section
Ann T. Eakes, Univ. of Texas Hlth. Sci. Cent. at San Antonio

Neural Control & Autonomic Regulation Section
Charles M. Foley, University of Missouri at Columbia

Renal Physiology Section
Caroline R. Sussman, University of Connecticut

Respiration Section
Richard M. Raymond, Jr., University of Cincinnati

Teaching of Physiology Section
Kurt R. Venator, University of Texas at Austin

Water & Electrolyte Homeostasis Section
Henry L. Keen, University of Mississippi Medical Center

1998 Australia Prize

In 1989, the Government of the Commonwealth of Australia instituted the Australia Prize as an international award for outstanding achievement in science and technology promoting human welfare. The prize consists of $300,000 and an inscribed medal. The field in which the award is to be made in 1998 is in molecular genetics.

Copies of the conditions of award and nomination requirements may be obtained from the Australia Prize Secretariat, GPO Box 9839, Canberra ACT 2601 Australia. Tel: 61-6-213-6448; fax: 61-6-213-6422; e-mail: aus-prize@dist.gov.au.

Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Awards

Graduate students and postdoctoral fellows submitted 84 applications for the 1997 Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Award. The APS Women in Physiology Committee, chaired by Kim Barrett of the University of California at San Diego, selected 20 awardees who attended EB '97 in New Orleans, LA. 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, and complimentary registration for the EB '97 meeting. Awards were presented during the APS Business Meeting at EB '97. Awardees were:

tum Suden/Hellebrandt awardees with Kim Barrett, Chair of the Women in Physiology Committee.

Nabil J. Alkayed, Johns Hopkins University

Alex F. Y. Chen, Mayo Clinic

Chung-Wai Chow, Hospital for Sick Children

Heidi L. Collins, Northeastern Ohio Univ. Coll. of Med.

Konstantina Dipla, Temple University School of Medicine

Hongkai Du, Harvard University Medical School

Stephen Dukacz, University of Western Ontario

Hiromi Gunshin, Harvard Medical School

Atsuhiro Ichihara, Tulane University School of Medicine

Severina M. Jacinto, Tulane University School of Medicine

Diane Munzenmaier, Medical College of Wisconsin

Sophia A. Omoro, Tulane University School of Medicine

Ushma Savla, Northwestern University Medical School

Karie Scrogin, University of Iowa

Matthew Walker III, Tulane University School of Medicine

Richard M. White, Albany Medical College

Yong Xia, Johns Hopkins University

Zhi Xu, University of Nebraska Medical Center

Ling Xu, Oregon Health Sciences University

Kun Zhang, University of Nebraska Medical Center

NIDDK awardees. Experimental Biology '97, New Orleans, LA.

NIDDK awardees. Experimental Biology '97, New Orleans, LA.

Minorities Awarded Travel Fellowships to Attend EB '97

Since 1987, APS has awarded travel fellowships to underrepresented minorities to attend the APS/EB meeting each spring. These travel awards are supported by the National Institute of Diabetes and Digestive and Kidney Diseases and the National Institute of General Medical Sciences. The program provides awardees with funds for transportation, meals, and lodging, and offers complimentary meeting registration. This year, 36 minority students won awards enabling them to attend EB '97 in New Orleans, LA. The fellows were each assigned to a mentor to help the fellows make the most of their experiences at the meeting. The mentors, all of whom were APS members, provided guidance on sessions to attend, introduced fellows to other scientists, and offered career advice. Finally, the fellows and their mentors attended a closing luncheon, during which they reviewed the week's scientific activities and heard an address by APS member Alice R. Villalobos from the University of Connecticut. Villalobos spoke to the students about strategies for making the transition from graduate to postdoctoral positions.

The travel awards are open to graduate students, postdoctoral students, and advanced undergraduate students from minority groups underrepresented in science, i.e., African Americans, Hispanics, Native Americans, and Pacific Islanders. Students must be US citizens or permanent residents. The specific intent of this award is to increase participation of pre- and postdoctoral minority students in the physiological sciences.

EB '97 Minority Travel Fellows were:

Nancy M. Aguilar, University of California at San Diego
Diane S. Allen-Gipson, Florida A&M University
Lisa C. Applewhite, Morehouse School of Medicine
Patricia A. Arreola, New Mexico State University
Cherie L. Butts, University of Maryland at Baltimore
Qadriyyah J. Debnam, Meharry Medical College
Joel B. DeLeon, University of Texas at San Antonio
Christopher A. DeSouza, University of Colorado
Ana Y. Estevez, Wayne State University
Paula Estrada, California State University at San Bernardino
Gerald D. Frank, Meharry Medical College
Annette M. Gabaldon, University of California at Davis
Rayna J. Gonzales, Univ. of New Mexico School of Med.
Tholeathcus A. Grantham, North Carolina Central University
Kawanza L. Griffin, University of Missouri at Columbia
Cathy J. Hatcher, Medical College of Georgia
Gerald M. Herrera, University of New Mexico
Lyndon Joseph, Pennsylvania State University
Christina L. Martinez, University of Arizona
Sheila A. Mathias, Meharry Medical College
James Eric McDuffie, Meharry Medical College
Andre L. Mitchell, University of Missouri at Columbia
Kawonia P. Mull, Meharry Medical College
Sheree L. Murphy, University of Iowa College of Medicine
Monique L. Ogletree-Hughes, Cleveland Clinic Foundation
Candace Parker, Meharry Medical College
Jewel R. Payne, Montana State University at Bozeman
Victor J. Quijano, Jr., University of Wisconsin at Madison
Elizabeth S. Quintana, New Mexico State University
Cherilynn M. Reynolds, Meharry Medical College
Tracy A. Rodriguez, Northern Arizona University
Roberto P. Silva, The Lovelace Institutes
Stacie A. Smith, University of Michigan
Greg Villareal, University of Texas at San Antonio
Lori Wesely, Georgetown University School of Medicine
Letha Woods, Meharry Medical College

APS Members who served as mentors to the awardees were:

William J. Arendshorst, Univ. of North Carolina at Chapel Hill
Susan M. Barman, Michigan State University
Kim E. Barrett, University of California at San Diego
Kathleen H. Berecek, University of Alabama at Birmingham
Marvin H. Bernstein, New Mexico State University
Zeljko Bosnjak, Medical College of Wisconsin
Eldon J. Braun, University of Arizona
Deborah Damon, University of Vermont
Stephen E. DiCarlo, Northeastern Ohio Univ. Coll. of Med.
Henry J. Donahue, Penn State University Coll. of Medicine
Dwain L. Eckberg, Medical College of Virginia
Joey P. Granger, University of Mississippi
Stan S. Greenberg, Louisiana State University Medical Center
Robert A. Herb, Northern Arizona University
Irving Joshua, University of Louisville School of Medicine
William L. Joyner, East Tennessee State University
Ulla C. Kopp, University of Iowa College of Medicine
Gary Malvin, The Lovelace Institutes
Patricia J. Metting, Medical College of Ohio
Luke H. Mortensen, Univ. of Osteopathic Med. & Hlth. Sci.
George Ordway, Univ. of Texas Southwestern Med. Cent.
C. Leo Ortiz, University of California at Santa Cruz
Heidi K. Ortmeyer, University of Maryland at Baltimore
J. Michael Overton, Florida State University
C. Subah Packer, Indiana University
Mohan K. Raizada, University of Florida
Chester Ray, University of Georgia
Phillip L. Rayford, Univ. of Arkansas College of Medicine
Jane F. Reckelhoff, University of Mississippi Medical Center
Michael J. Rovetto, University of Missouri
Roy D. Russ, Mercer University School of Medicine
John N. Stallone, Northeastern Ohio Univ. Coll. of Medicine
Mary I. Townsley, University of South Alabama
Alice Villalobos, University of Connecticut
R. Clinton Webb, University of Michigan Medical School
Stephen C. Wood, East Carolina University

Society Awards

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 APS

The recipient receives an honorarium of $500, a plaque, and expenses to participate in the EB 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 APS 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 EB meeting. If the awardee wishes, and there is a suitable place on the program, an oral presentation will be made at the EB 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 EB 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.

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 predominantly 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.

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 APS working within the US, reflecting Giles F. Filley's contributions to the national research community through his membership in APS. Because of 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 dur-

ing the APS Business Meeting held at the EB 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 EB 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."

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

APS 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 cash prize 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 in writing the student status of the candidate.❖

Section Awards

Distinguished Lectureship Awards

The 12 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 EB meeting.

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

The 12 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 F. Adolph Distinguished Lectureship of the APS Environmental and Exercise Physiology Section
- Horace W. Davenport Distinguished Lectureship of the APS Gastrointestinal Section
- Carl Ludwig Distinguished Lectureship of the APS Neural Control and Autonomic Regulation Section
- Carl W. Gottschalk Distinguished Lectureship of the APS Renal 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 EB 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, Central Nervous System, Neural Control & Autonomic Regulation, Renal Physiology, Respiration, 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 Harreveld 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 EB 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 EB meeting or the Comparative Physiology Intersociety fall meeting. Candidates must be not more than five years beyond their highest degree. The recipient receives a cash award or prize and a certificate.

Environmental and Exercise Physiology

The Environmental and Exercise Physiology (EEP) section presents two annual awards: the EEP Section Young Investigator Award and the Senior Investigator Honor Award.

The EEP Section Young Investigator Award is designed to recognize outstanding research in environmental physiology by a graduate student. The student must be first author on an abstract presented in a slide session at the EB meeting. The awardee is presented with a cash prize and certificate at the annual section banquet.

The Senior Investigator Honor Award is presented as recognition of significant research contributions to one or more of the following areas of physiology: environmental, thermal, or exercise. Nominations are submitted to the section steering committee and the awardee is presented with a cash prize and certificate at the annual section banquet

APS and Section Awards

Gastrointestinal

The Gastrointestinal section presents two annual awards: the Gastrointestinal Physiology Section Student Prize and the Distinguished Research Award in Gastrointestinal Physiology.

The Gastrointestinal Section Student Prize is designed to challenge and reward trainees who are engaged in gastrointestinal research. Two awards will be made at the EB meeting. One will be given for work done while enrolled as a doctoral or medical student. A second award will be given for work performed during the first through third postdoctoral years or during a medical residency. In order to be considered, the applicant must be first author on an abstract submitted for the EB meeting, and either the applicant or sponsor must be a member of APS. Awardees are presented with a cash prize and certificate at the annual section banquet.

The Distinguished Research Award in Gastrointestinal Physiology recipient is selected by the steering committee to recognize outstanding achievement in gastrointestinal research. The recipient will present a lecture during the annual section banquet and receives a cash prize.

Neural Control and Autonomic Regulation

The Michael J. Brody Young Investigator Award is intended to recognize a promising young investigator who has made a significant contribution to the 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 present and are first authors on an abstract at the EB meeting. The applicant or abstract sponsor must be a member of APS.

Renal

The Hoechst Marion Roussel Excellence in Renal Research is sponsored by Hoechst Marion Roussel and is designed to promote and develop excellence in research pertaining to molecular, cellular, or organ mechanisms involving the kidney. Awards are presented to two categories of students: predoctoral students (including graduate students and medical students) and postdoctoral fellows. Award recipients must be first authors on an abstract submitted to Renal and Electrolyte Physiology for programming at the EB meeting. Prior to the meeting, a first level of evaluation is conducted based on the submitted abstract A subset of abstracts are further judged during oral presentation at the meeting. Award winners are announced at the annual renal dinner held in conjunction with the meeting and are presented with a cash prize of $200 and a certificate.

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 copies to the chairperson of the Award Selection Committee.

The person selected will receive the award at the annual banquet of the Teaching of Physiology Section. The Teacher of the Year will receive a framed, inscribed certificate; an honorarium of $1,000; and expenses of up to $750 to attend the EB 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 regulatory and integrative physiology. 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 or disease. The award will consist of $500, a plaque, and complimentary registration to the annual EB meeting. The recipient of the award will be invited to present a short lecture on his/her research during a scientific session of the EB meeting.

Any member of APS in good standing may apply or 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 APS.❖

The Abstract Deadline for EB '98 is December 1, 1997

The Call for Papers will be mailed September 1st

Physiology and Experimental Biology '97

EB '97 was held April 6-9 in New Orleans, LA, and was a joint meeting of four FASEB societies, APS, American Society for Investigative Pathology (ASIP), American Society for Nutritional Sciences (ASNS), and American Association of Anatomists (AAA), and four guest societies, Biomedical Engineering Society, Society for Experimental Biology and Medicine, North American Society for Biorheology, and North American Vascular Biology Organization. EB '97 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 and gene regulation.

A total of 3,836 volunteered abstracts were submitted. Of this total, 2,072 papers or 54% were received from APS membership and its guest societies. Details about abstract submission for each of the various themes are included in Tables 1 and 2. Of the 3,836 total abstracts received, slightly more than half (2,003 or 52%) were incorporated into themes; the remaining abstracts (1,833 or 48%) were presented under the auspices of the sponsoring societies. Of the 2,072 abstracts submitted to APS, nearly two-thirds (1,310 or 63%) were presented as part of themes, whereas the other third (762 or 37%) were presented as part of a societal program.

Of the 2,072 APS abstracts, 22% (449) were presented by female scientists as first authors and 18% (372) were received from institutions outside the Americas. Government laboratories represented 3% (66) of the abstracts received, and industry laboratories represented 2% (51). Table 3 provides information on the departmental affiliations of the first authors and indicates that 22% (464) were received from departments of physiology and 4% (90) from departments of physiology and biophysics.

Table 1. EB '97 Abstracts by Theme and Society

	APS	ASIP	ASNS	AAA	Total
Total abstracts received	2,072	392	1,176	196	3,836
Theme name					
Cardiovascular Biology	683	32	43	25	783
Epithelial Cell Biology	95	5	8	10	118
Metabolic Processes in Health and Disease	107	9	331	8	455
Neurobiology	124	6	42	57	229
Regulation of Growth and Development	35	9	21	25	90
Respiratory Biology	184	10	8	4	206
Signal Transduction	82	4	24	12	122
Total abstracts per theme	1310	75	477	141	2003
% to Themes of total received by society	63%	19%	41%	72%	52%
Change from 1996 meeting	0%	-21%	-8%	+42%	-2%

Table 2. EB '97 Number and Type of Sessions Programmed by Theme

Theme Name	Invited	Oral/Mini	Poster	Poster Discussion	Total
Cardiovascular Biology	6	18 (190)	39 (704)	0	63 (894)
Epithelial Cell Biology	5	4 (42)	8 (96)	0	17 (138)
Metabolic Processes in Health and Disease	6	17 (176)	30 (354)	0	53 (530)
Neurobiology	5	5 (47)	18 (180)	0	28 (227)
Regulation of Growth and Development	3	1 (12)	8 (71)	0	12 (83)
Respiratory Biology	5	5 (46)	9 (180)	2 (13)	21 (239)
Signal Transduction	4	2 (18)	7 (73)	0	13 (91)
Total sessions and abstracts programmed by theme	34	52 (531)	119 (1,658)	2 (13)	207 (2,202)

Numbers in parentheses are number of abstracts.

TABLE 3. Author Affiliations of Programmed Volunteered Papers From Experimental Biology '97

Department	Number of Papers	% Total
Physiology	464	22
Pharmacology	186	9
Biology	112	5
Medicine	95	5
Physiology and Biophysics	90	4
Surgery	83	4
Anesthesiology	72	3
Biomedical Engineering	56	3
Pediatrics	48	2
Biochemistry	36	2
Exercise/Sports Medicine	22	1

APS programmed 168 total sessions that included: 87 poster, 26 slide, 25 symposium, 13 lecture, five Physiology InFocus, four poster-discussion, one refresher course, one minisymposium and six miscellaneous sessions. The lecture sessions included 11 section distinguished lectureships (the Teaching of Physiology Section abstained) 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 miscellaneous sessions comprised of a debate, panel discussion, the APS Business Meeting, Public Affairs symposium, Career Opportunities in Physiology symposium, and the Women in Physiology Mentoring program.

The total meeting registration was 7,593, which represents a decrease of 25% from EB '96 in Washington, DC, where four societies met (APS, ASNS, AAA and American Society for Pharmacology and Experimental Therapeutics). The total scientific registration was 5,844 with 2,734 members, 1,443 nonmembers, 80 retirees, and 1,587 students. Additionally, there were 1,298 exhibitors, 232 guests of exhibitors, 194 guests of scientists, and 25 press registrants.

APS gratefully acknowledges the support, through educational grants, from Amylin Pharmaceuticals, Inc.; The Grass Foundation; Merck & Company, Inc.; Mini-Mitter Company, Inc.; Ohmeda Pharmaceutical Research Products Division, Inc.; Pfizer, Inc.; William Townsend Porter Foundation; RIBI ImmunoChem Research, Inc.; Sandoz Pharmaceuticals Corp.; and SmithKline Beecham Pharmaceuticals.❖

Experimental Biology '98

April 18–22 • San Francisco, CA

Physiology InFocus
Genomics to Physiology: How Do We Get There?

Organizer: Francis Collins, NIH

Monday, April 20, 1998 Morning Seesion

Genomic/BioInformatic Resources for Physiology/Pharmacology
Francis Collins, NIH

Monday, April 20, 1998 Afternoon Session

High-Throughput Technology From Expression/DNA Chips to Physiological Function
Pat Brown, Stanford University

Tuesday, April 21, 1998 Morning Session

Regulation of a Function via Variations in Genes and/or Protein Interactions
Stanley Fields, University of Washington

Tuesday, April 21, 1998 Afternoon Session

Applying Molecular Genetic Tools to Physiological/Pharmacological Questions
Howard J. Jacob, Medical College of Wisconsin

Distinguished Lectureships

Robert M. Berne Distinguished Lectureship of the Cardiovascular Section
Lecturer: **Kenneth R. Chien**, Univ. of California at San Diego
Title: *Genetically Engineered Animal Models of Cardiac Development and Disease: Genes and Physiology*

Hugh Davson Distinguished Lectureship of the Cell and General Physiology Section
Lecturer: **Sir Andrew Huxley**, Trinity College (UK)

Joseph Erlanger Distinguished Lectureship of the Central Nervous System Section
Lecturer: **Lawrence B. Cohen**, Yale University

August Krogh Distinguished Lectureship of the Comparative Physiology Section
Lecturer: **Harold T. (Ted) Hammel**, Indiana University
Title: *Evolving Ideas About Osmosis*

Solomon A. Berson Distinguished Lectureship of the Endocrinology & Metabolism Section
Lecturer: **Phyllis M. Wise**, University of Kentucky
Title: *"Menopause": Interplay Among Several Endocrine Pacemakers*

Edward F. Adolph Distinguished Lectureship of the Environmental & Exercise Physiology Section
Lecturer: **Kenneth M. Baldwin**, Univ. of California at Irvine
Title: *Interaction of Mechanical Activity and Thyroid Hormone on Skeletal Muscle Plasticity*

Horace Davenport Distinguished Lectureship of the Gastrointestinal Section
Lecturer: **George Sachs**, Univ. of California at Los Angeles

Carl Ludwig Distinguished Lectureship of the Neural Control & Autonomic Regulation Section
Lecturer: **K. Michael Spyer**, Royal Free Hospital, London

Carl W. Gottschalk Distinguished Lectureship of the Renal Section
Lecturer: **Walter F. Boron**, Yale University

Julius H. Comroe, Jr., Distinguished Lectureship of the Respiration Section
Lecturer: **John M. Harlan**, University of Washington
Title: *Leukocyte-Endothelial Interaction: Molecular Basis and Clinical Relevance*

Claude Bernard Distinguished Lectureship of the Teaching of Physiology Section
Lecturer: **Donald T. Frazier**, University of Kentucky
Title: *Appreciation and Enhancement of Physiological Teaching Through Outreach Involvement*

Ernest H. Starling Distinguished Lectureship of the Water & Electrolyte Homeostasis Section
Lecturer: **John E. Hall**, University of Mississippi

APS-Approved Symposia

Control of mitochondrial free fatty acid uptake and oxidation in working striated skeletal muscle
George A. Brooks

Current mechanisms of blood coagulation regulation
Stephen T. Rapundalo

Dominant-negative approaches to explore physiology
John R. Dedman

Emerging technologies' role in physiology instruction
Robert G. Carroll

Glutamate transport, metabolism, and physiological responses
Tomas C. Welbourne

Hemodynamic and renal tubular interactions of endothelin and nitric oxide
David M. Pollock

Interaction between vascular endothelium and smooth muscle: advances in physiology and pathology
Guo-Wei He

Intestinal adaptations to fasting
Ronaldo P. Ferraris

Is the development of atherosclerotic lesions determined by monocyte-endothelial adhesion?
Klaus Ley

Mechanisms of adaptation to hypoxia: organizational, cellular and molecular responses
F. Ismail-Beigi and Cynthia M. Beall

Molecular approaches to understanding cellular responses to stress
Kenneth B. Storey

Molecular mechanisms of protein traffic and secretion
Kevin L. Kirk

Na-K-2Cl cotransporters: heterogeneity of structure, function and regulation
Susan M. Wall

Neurochemical and peptidergic pathways of the baroreflex arc in the medulla oblongata
David B. Averill

Neuronal assembly dynamics: cellular and network mechanisms in cardiorespiratory control
Bruce G. Lindsey

New perspectives of pulmonary blood flow distribution
Michael P. Hlastala

Pleuripotent effects of TNFalpha on insulin-sensitive tissues
Jacqueline M. Stephens

Protein phosphatases in cell signaling pathways
A. V. Somlyo

Role of sex steroids in cardiovascular-renal physiology and pathophysiology
Jane F. Reckelhoff

Role of tight junctions in the regulation of tissue permeability
Kenneth R. Spring

Strength, functional capacity and trainability of aging skeletal muscle
Robert S. Mazzeo

Vascular biology of homocysteine
Stephen J. Elliott

Guest Society Symposia

Biomedical Engineering Society

Engineering gene therapeutics
Jeffrey R. Morgan

Transport phenomena in cellular and molecular processes
Scott L. Diamond

Understanding biological systems through mathematical modeling
Jerry C. Collins

Chinese Physiological Society

Molecular and cellular changes during aging
Paulos S. Wang

Microcirculatory Society

Vascular Development in Engineered Tissues
Bruce Klitzman

Society for Experimental Biology and Medicine

Alternative premessenger RNA splicing: biology and pathology
Edward J. Benz, Jr.

Special Sessions and Societal Lectures

Henry Pickering Bowditch Award Lectureship

Lecturer: **Michael Caplan**, Yale University

Walter B. Cannon Award Lectureship

(supported by the Grass Foundation)
Lecturer: **Eric R. Kandel**, Columbia University

Refresher Course

Refresher course for teaching renal physiology
Virginia L. Brooks and Arthur J. Vander

Dramatic Presentation

A centennial symposium on the publication of the American Journal of Physiology
Charles M. Tipton and Daniel L. Gilbert

Public Affairs Workshop

Career Opportunities in Physiology Workshop

Sixth Annual Women in Physiology Mentoring Workshop

Experimental Biology

Call for Symposia/Program Proposals

Members are invited to submit proposals for APS symposia or other program formats 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 session address? Are there two or three conflicting issues that warrant presentation and discussion? What does the session offer to the intended audience? Are future directions considered in the material to be presented?

Proposals are welcome for the annual spring meeting, Experimental Biology '99. Sessions will be considered for presentation as part of the traditional APS program that highlights areas of interest to the physiological community. In addition, proposals 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.

Proposals are evaluated on the basis of their scientific merit. Organizers will be notified shortly after the 1998 spring meeting on acceptance of their proposal. Proposal forms may be obtained by contacting the Membership Services Department at 301-530-7171. ❖

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. APS will be responsible for all aspects of the meeting management and will provide limited 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 Allen at the APS Office. The deadline for proposals to be considered for 2000 is February 15, 1998.

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.

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, 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 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 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 Council. 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 2000 must reach the office in Bethesda by February 15, 1998.❖

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

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Ethan Nadel
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Hypoxia Group
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Dept. of Physiol. & Biophysics
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19099 Euclid Avenue
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Neural Control & Autonomic Regulation
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Atlanta, GA 30322-3090

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Myobio Group
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Members in Industry Group
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Dept of Metabolic Diseases
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Princeton, NJ 08543-4000

Education Committee
Francis L. Belloni
Dept. of Physiology
New York Medical College
Valhalla, NY 10595

Guest Societies

Biomedical Engineering Society
Mehmet Toner
Center for Engineering in Medicine
Mass General Hospital
55 Fruit Street
Boston, MA 02114

Society for Experimental Biology and Medicine
Dale R. Romsos
Dept of Food Science & Human Nutrition
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Michigan State University
East Lansing, MI 48824-1224

Microcirculatory Society
Bruce Klitzman
Plastic Surgery Research Laboratories
Duke University Medical Center
P.O. Box 3906
Durham, NC 27710-3906

Council Elects Two Honorary Members

Pierre Corvol has had both medical and scientific training. He obtained his MD in 1971 from the University of Paris, having received his diploma in biochemistry from the same institution in 1969. He was an international postdoctoral research fellow at the National Cancer Institute in M. B. Lipsett's laboratory and is currently Scientific Director of INSERM Unit 36, Vascular Pathology and Renal Endocrinology, and Chairman of Experimental Medicine at the Collège de France in Paris. Corvol is a member of the French Academy of Sciences and has received many awards, including the Ciba Award for Hypertension Research , the European Medal of the British Society for Endocrinology, and the Humboldt Award.

Corvol's scientific contributions concern the extensive biochemical, pharmacological, and molecular characterization of the different components of the renin-angiotensin system in humans. His work has allowed the development of new tools for the investigation of the renin system in humans, the design of new inhibitors, and the discovery of the involvement of these genes in cardiovascular diseases, especially in human genetic hypertension and myocardial infarction. Corvol first cloned mouse renin and human angiotensin-converting enzyme, developed different monoclonal human renin antibodies that are currently used for direct renin and prorenin assays, and synthesized early renin inhibitors derived from the renin prosegment and statine-containing pseudopeptides. Early on, he developed the field of molecular genetics of human hypertension. He discovered that an angiotensin gene polymorphism is associated to an increase in plasma angiotensinogen levels and is linked to familial essential hypertension.

Pierre Corvol

Corvol's current research deals with the phylogenesis of the renin-angiotensin system, the structure/function of angiotensin-converting enzyme and angiotensin II receptors, the central control of blood pressure regulation by angiotensin II and III, and the molecular genetics of human hypertension.

(continued on the next page)

Honorary Members of APS

Ivan Assenmacher
Montpellier, France
Knut Aukland
Bergen, Norway
Emile Baulieu
Paris, France
Michael J. Berridge
Cambridge, UK
Pierre Corvol
Paris, France
Pierre Dejours
Strasbourg, France
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Stockholm, Sweden
Sir Andrew Huxley
Cambridge, UK
Hugh E. Huxley
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Masao Ito
Saltama, Japan
Michel Jouvet
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Karl J Ullrich
Frankfurt, Germany
Hans H. Ussing
Copenhagen, Denmark
Sir John Vane
London, UK
Jean-Didier Vincent
Paris, France
Ewald R. Weibel
Bern, Switzerland
Silvio Weidmann
Berne, Switzerland

(continued from the previous page)

Victor Gurfinkel is currently Director of the Laboratory of Motor Control of the Russian Academy of Sciences Institute for Transmission Problems in Moscow and Director of the French-Russian Space Program. Over the past 50 years, he has made seminal contributions to our understanding of the neural control of movement. The most distinctive feature of his work is its interdisciplinary emphasis, with his group composed of applied mathematicians, engineers, and physicists working hand-in-hand with clinicians, physiologists, and biologists.

In the broadest sense, Gurfinkel's group is probably best known for mathematical-neurophysiological models of the neuronal mechanisms whereby "higher" brain structures like the sensorimotor cortex, basal ganglia, and lateral cerebellum interact with structures of the brain stem and spinal cord and with sensory feedback to produce automatic and voluntary movement. He and his group have also been in the forefront in showing how the brain integrates visual, auditory, and proprioceptive sensory input to achieve an internal representation of the body's external relation to the environment. Finally, Gurfinkel and his colleagues have contributed to the design of robotic devices, as based on the neural control mechanisms of various animal species.

In summary, Gurfinkel and his colleagues have added mathematical and neurophysiological rigor to broad, fundamental formulations on the neural control of posture and movement. In recognition of his achievements, he has been elected to the Russian Academy of Sciences, awarded an honorary degree by the University of Provence in France, and is the recipient of the Robert S. Dow Neuroscience Award as well as the Alexander VonHumboldt Research Award.❖

Fifty-Year Members Elected in 1947

Alexander Albert	Rochester, MN
Thomas H. Allen	San Antonio, TX
Richard Bernard	Quebec, Quebec
Stanley E. Bradley	Wynnewood, PA
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American Physiological Society
REQUEST FOR MEMBERSHIP ADDRESS CHANGE

Please complete the following information and fax to: 301-571-8313 or mail to: Membership Services Department, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991

PLEASE PRINT LEGIBLY OR TYPE

Member's Last Name (Family Name): _____

First Name:_____ **Middle Name:** _____

Date of Birth: _____ **Degree(s):** _____

Department: _____

Mail Code/Bldg: _____

Institution: _____

Street/PO:_____

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Telephone: _____ **Fax:** _____

electronic mail address: _____

Position Title: _____

Home Zipcode for Public Affairs: _____

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Institution: _____

City/State/Zip: _____

1997 APS Conference

The Physiology and Functional Diversity of Amiloride-Sensitive Na^+ Channels: A New Gene Superfamily

October 29–November 1, 1997 • Park City, UT

Olympia Park Hotel and Conference Center

ORGANIZERS:

Dale J. Benos
University of Alabama at Birmingham
Bernard C. Rossier
University of Lausanne, Switzerland

STEERING COMMITTEE:

Douglas C. Eaton
Emory University School of Medicine
Lawrence G. Palmer
Cornell University Medical College
Bruce Stanton
Dartmouth College Medical School
David G. Warnock
University of Alabama at Birmingham

Deadlines: Abstracts June 13, 1997
Advance Registration September 15, 1997

PROGRAM

WEDNESDAY, October 29, 1997

Welcome
Meeting Overview
Dale Benos, University of Alabama at Birmingham, and **Bernard Rossier,** University of Lausanne, Switzerland

Ion Channels: Evolution and History
Ramon Latorre, University of Chile at Santiago

The ENaC Family
William Guggino, Johns Hopkins University

Cecilia Canessa, Yale University; **Laurent Schild**, University of Lausanne, Switzerland; **Peter Snyder**, University of Iowa; **Bernard Rossier**, University of Lausanne, Switzerland; **Edith Hummler**, University of Lausanne, Switzerland; **Richard Lifton**, Yale University; **Catherine Fuller**, University of Alabama at Birmingham

THURSDAY, October 30, 1997

Na^+ Channels in the Kidney
James A. Schafer, University of Alabama at Birmingham

Lawrence G. Palmer, Cornell University Medical College; **Brian Ling**, Emory University; **Nicolette Farman**, INSERM, Paris; **Bruce Stanton**, Dartmouth College Medical School; **Matt Breyer**, Vanderbilt University; **Steven Ernst**, University of Michigan

Regulation of Na^+ Channels
Dennis Ausiello, Massachusetts General Hospital

Haim Garty, Weizmann Institute of Science, Israel; **Sarah Sariban-Sohraby**, University of Brussels, Belgium; **Nick Johnson**, Presbyterian University Hospital; **Horacio Cantiello**, Massachusetts General Hospital; **Iskander Ismailov**, University of Alabama at Birmingham

FRIDAY, October 31, 1997

Socratic Debate: How Does cAMP Regulate Na^+ Channels?
Francois Verrey, University of Zurich, Swizerland; **Peter Smith**, Medical College of Pennsylvania

Socratic Debate: Are Amiloride-Sensitive Na^+ Channels in Nonepithelial Systems the Same as Those in Epithelia?
Mortimer Civan, University of Pennsylvania

James Bubien, University of Alabama at Birmingham; **Douglas C. Eaton**, Emory University School of Medicine

Na^+ Channels in the Lung
Pierre Barker, University of North Carolina

Pascal Barbry, CNRS, France; **Barbara Grubb,** University of North Carolina; **Hugh O'Brodovich**, Hospital for Sick Children, Toronto, Canada; **Sadis Matalon**, University of Alabama at Birmingham; **Jackson Stutts**, University of North Carolina; **Y. Berthiaume**, Hotel-Dieu, Montreal, Canada; **Colleen Talbot**, University of North Carolina; **Sandra Guggino**, Johns Hopkins University; **Yoshi Marunaka**, Hospital for Sick Children, Toronto, Canada

SATURDAY, November 1, 1997

Sensory Transduction and Amiloride-Sensitive Cation Channels
Bernd Lindemann, University of Sarrlandes, Germany

Carole Hackney, Keele University, UK; **Sue Kinnamon**, Colorado State University

Mechanosensitive Ion Channels
Cathy Morris, Ottawa Civic Hospital

Ching Kung, University of Wisconsin; **Martin Chalfie**, Columbia University; **Monica Driscoll**, Rutgers University; **Mouhamed Awayda**, Tulane University Midical Center; **Jean-Michel Achard**, Hopital SUD, Amiens, France

Na^+ Channels and the Cytoskeleton
Fiona McDonald, University of Victoria, New Zealand

Adrianna Prat, Harvard Medical School; **Daniela Rotin**, Hospital for Sick Children, Toronto, Canada

Clinical Relevance of Amiloride-Sensitive Na^+ Channels in Genetic Disease
Michael Welsh, University of Iowa

David Warnock, University of Alabama at Birmingham; **Ric Boucher**, University of North Carolina

Structural Models of Amiloride-Sensitive Na^+ Channels
Mauricio Montal, University of California at San Diego

Tom Kleyman, University of Pennsylvania; **Jean-Daniel Horisberger**, University of Lausanne, Switzerland; **Robert Guy**, NIH

H.R. 635 Would Interfere With Research

"Animal Welfare Act Amendments of 1997" (H.R. 635)

Sponsors:

Reps. Jon Fox (R-PA) and Tom Lantos (D-CA)

Overview:

H.R. 635 claims that it would improve Animal Welfare Act (AWA) enforcement and eliminate "pet theft" through expanded licensing requirements for Class B dealers who sell non-purpose-bred dogs and cats for research. However, some of the other new enforcement powers proposed in H.R. 635 could lead to disruptions in research. Further, the proposed dealer licensing changes would not help reunite owners with their pets, but they would interfere with research that relies upon animals that are large, physiologically mature, and free from shared genetic traits. Such animals are needed for research on problems such as heart disease, neurological disorders, shock and trauma, and bone and joint diseases.

Enforcement provisions of H.R. 635:

- The most troubling proposal would allow USDA to use injunctions to halt specific research projects for suspected AWA violations.
- **This new power is unnecessary since USDA already has the authority to ensure researchers' compliance with AWA**.
- USDA could not issue or renew an animal dealer's license if it had been suspended, revoked, or voluntarily terminated while in violation of AWA; or if the dealer had not paid a civil penalty assessed under AWA; or had been convicted of, or had entered a "no contest" plea to, charges of violating any treaty or federal, state, or local law for the care and treatment of animals, for record keeping, or for endangered or threatened species protection.
- USDA could suspend or refuse to renew a dealer's license for up to 120 days for suspected AWA violations instead of the current 21-day period. Dealers notified of suspension for suspected infractions would have 10 days to request a hearing before an administrative law judge. Such a hearing would have to take place within 30 days, with a decision to be issued within 30 more days. If the judge found a violation, USDA could suspend, revoke, or refuse to renew the license for an unspecified period. If no hearing was requested, the suspension would continue until a USDA decision was reached.

Dealer licensing restrictions in H.R. 635:

- H.R. 635 would require pounds and shelters operated by or for local governments to obtain USDA licenses to sell animals for research.
- The bill would also eliminate the current statutory exemptions from licensing requirements for individuals who provide small numbers of dogs and cats for research. Furthermore, even those who run animal auctions and trade days and flea markets where others sell dogs and cats would themselves have to be licensed as animal dealers.
- **These provisions would add burdensome and unnecessary licensing requirements that would discourage legitimate suppliers of dogs and cats for research.**

APS position:

APS opposes H.R. 635 because it would hamper medical research without improving animal welfare. APS represents more than 8,000 scientists who conduct research on the workings of the organs and systems of the body. Many APS members use animals in their research, and APS has a long-standing commitment to humane animal care.

Injunctive Relief is unneeded:

- USDA and federal agencies that fund biomedical research already have the tools they need to enforce animal welfare standards at research facilities. Every USDA-registered institution has an oversight committee that approves research protocols and can halt a project if a serious animal care question arises. Mistreated animals can be confiscated, and institutions that violate humane care standards may be subject to significant fines under AWA or the loss of federal grant funds.
- In legislating AWA, Congress explicitly stated that laws to assure laboratory animal welfare would not interfere with the actual conduct of research. Experience has shown that sanctions against research facilities are rarely needed because valid science, professional integrity, and public confidence all depend on good animal care.
- Medical researchers do not need to be threatened with federal injunctions in order to comply with the law. Proper treatment of animals is important both for its own sake and to ensure that research results are valid.
- Giving USDA injunctive authority to halt research would bring USDA under pressure from litigious animal rights activists who are already far too eager to use the courts to interfere with research. USDA would be peppered with lawsuits demanding that the government halt this or that project.
- **Animal rights extremists should not be handed a weapon that they will use to undermine life-saving research supported by the vast majority of the American public.**

"Pet Theft" provisions won't help pets:

- Pet theft is a rare occurrence. Animal activists have made sensational allegations that there is massive, organized pet

theft for research, but they have never backed up those allegations with proof. Most missing pets get lost. They may be picked up by animal control personnel or become the victims of traffic accidents or attacks by other animals.

- **H.R. 635 will not help the many millions of pets who suffer these fates.**
- Only a relatively small number of dogs and cats (82,000 dogs and 26,000 cats in FY 1996) are needed for medical research. At present, about a quarter come from USDA-licensed Class B dealers, who provide animals where the local pounds cannot or will not sell them to research facilities.
- AWA specifies that Class B dealers may not buy stolen dogs or cats and requires them to keep records on who sold them each such animal. AWA also has mandatory holding periods for both pounds and shelters and Class B dealers before dogs and cats can be transferred to research facilities. These holding periods were added to give owners time to claim lost pets. In addition, research facilities screen non-purpose-bred dogs and cats for collars, tattoos, or microchips that might identify them as pets.
- **H.R. 635 will not reunite millions of pets with their owners, but it could interfere with life-saving medical research. APS urges members of Congress not to support or lend their names to this bill.**❖

Cosponsoring Representatives:

Robert Andrews (D-NJ)
James Barcia (D-MI)
Bob Barr (R-GA)
Peter DeFazio (D-OR)
Lane Evans (D-IL)
Sam Farr (D-CA)
Elizabeth Furse (D-OR)
Luis Gutierrez (D-IL)
Sue Kelly (R-NY)
Barbara Kennelly (D-CT)
Jerry Kleczka (D-WI)
Zoe Lofgren (D-CA)
Thomas Manton (D-NJ)
Matthew Martinez (D-CA)
Susan Molinari (R-NY)
Richard Neal (D-MA)
Del. Eleanor Norton (D-DC)
Glenn Poshard (D-IL)
Nancy Pelosi (D-CA)
Lynn Rivers (D-MI)
Christopher Shays (R-CT)

Write any Representative as follows:

The Honorable _____
US House of Representatives
Washington, DC 20515

Group Asks that Animal Antibody Production Be Halted

The American Anti-Vivisection Society (AAVS) has petitioned NIH to prohibit the use of the animal-based ascites method of producing monoclonal antibodies (MAbs). This method involves implanting cells in animals' abdomens, which causes the effusion and accumulation of serous fluid with the desired antibodies.

The petition, which was announced at an April press conference at the New York Academy of Sciences, calls upon NIH to confirm the validity and reliability of nonascites methods of MAb production, including gas-permeable tissue culture bags, stationary and suspension cell cultures, dialysis tubing or chambers, bioreactors, cell encapsulation, minifermenters, oscillating bubble chambers, and recombinant biotechnology. The petition also asks NIH to train its own scientists to use alternatives and to conduct education and outreach programs on alternatives. It further requests that NIH propose a regulation requiring all NIH-funded scientists to use alternative methods of MAb production.

AAVS science adviser John McArdle told the press conference that the ascites method causes "more than a million animals to suffer and die each year in US laboratories when readily available alternatives are superior." The animal method is currently banned in Germany, the Netherlands, and Switzerland, and scientists from the European Centre for the Validation of Animal Methods (ECVAM) have recommended that it be banned throughout the European Union on the grounds alternative methods are sufficient.

According to *Lab Animal* magazine, the first technique for producing MAbs without inducing ascites was a cell culture method described by Kohler and Milstein in 1975. The other methods listed above have since been developed, and one company, whose president and CEO participated in the press conference, says that it is on the verge of marketing a gas-permeable tissue culture kit that will produce significant numbers of antibodies at one-third the cost of using animals. The ascites method has been popular among researchers because it reliably produces adequate numbers of antibodies at a reasonable cost.

The AAVS petition was filed in accord with the Administrative Procedures Act (which permits the public to use petitions as a method to request regulatory changes) and with the NIH Revitalization Act (which calls upon NIH to promote nonanimal alternatives in medical research). AAVS filed a similar petition with USDA under the Animal Welfare Act. As of early July, neither agency had taken action on the proposal.

If you use MAbs, please contact Alice Hellerstein of the APS Public Affairs Office to provide your comments on whether the proposed non-animal methods of MAb production are acceptable.❖

USDA Reports Animal Use Trend Continues Downward

The use of most USDA-regulated animal species in research, teaching, and testing continues to decline according to the most recent annual statistics released by USDA.

The Animal Welfare Act (AWA) requires every research facility that deals with regulated animals to provide an annual report listing the number and species of animals used during the preceding fiscal year and whether pain- or distress-relieving drugs were administered. Excluded from the reporting requirements are specially bred laboratory rats and mice, birds, frogs, lizards, and farm animals used for agricultural research. (Rats and mice are estimated to comprise 90% of the animals used in research and testing.) USDA's *Animal Welfare Enforcement Fiscal Year 1996* has just been submitted to Congress for approval.

Reported animal usage has declined dramatically since statistics were first reported in FY 1973. In the past few years, declines have been reported for most species. One notable exception is primates, which tend to live long lives in captivity and may be reported repeatedly from year to year.

AWA also requires facilities to report how many animals were involved in projects involving pain or distress for which no drug relief was provided. In FY 1996, 53% of the animals reported were involved in procedures that caused no pain or distress, and another 35% were involved in projects where drugs were administered to alleviate pain or distress. Twelve percent were involved in painful or distressing projects without alleviating drugs, up from 9% in FY 1995. According to the National Association for Biomedical Research, this may be due to greater sensitivity and better recognition of animal pain by researchers and Institutional Animal Care and Use Committees.

USDA's *Animal Welfare Enforcement Report* is available on the Internet at **http://www.aphis.usda.gov/ac** under "publications." A copy can be obtained by faxing a request to Jerry DePoyster at 301-734-4978.❖

Table 1. Use of USDA-Regulated Animal Species in Research, Education, and Testing

Covered species	FY 1973[1]	FY 1994	FY 1995	FY 1996
Dogs	195,157	101,090	89,420	82,454
Cats	66,195	32,610	29,569	26,035
Primates	42,298	55,113	50,206	52,327
Guinea Pigs	408,970	360,184	333,379	299,011
Hamsters	454,986	298,934	248,402	246,415
Rabbits	447,570	393,751	354,076	338,574
Farm Animals[2]		180,667	163,985	154,344
Other covered animals[3]	38,169	202,300	126,426	146,579
TOTAL	**1,653,345**	**1,624,649**	**1,395,463**	**1,345,739**

[1] FY 1973 was the first year AWA required reports on animal usage.

[2] Traditional farm animals for research purposes have been reported only since 1990.

[3] Other covered animals was previously called "wild animals." This category includes bears, armadillos, squirrels, and wild rodents, but not rats and mice bred for laboratory use, frogs, lizards, or birds.

APS *Sourcebook for the Use of Animals in Physiological Research*

The APS *Sourcebook for the Use of Animals in Physiological Research and Teaching* was sent to all APS members when it was first published in 1994. Since then, it has been sent to all new members who join the Society.

This 16-page booklet discusses how individual investigators and their institutions can best be prepared to cope with possible targeting by animal rights activists. It emphasizes the fact that the greatest damage by far from such attacks comes from the public assault on the reputation and credibility of the individual researcher.

"To minimize the demoralizing effects of this vilification, it is imperative that both the institution and the investigator's colleagues immediately rally in support of the individual who is under attack," the *Sourcebook* advises. The book goes on to offer practical steps to take to assure that support will be quickly forthcoming.

A single replacement copy of the APS *Sourcebook* is available to APS members at no cost. Nonmembers may purchase a single copy for $5.00. Multiple copies of the *Sourcebook* may be purchased for $3.00 each. Contact APS Public Affairs Officer Alice Hellerstein at 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel: 301-530-7105; fax: 301-571-8305; e-mail: ahellers@aps.faseb.org.❖

Commission Recommends Ban on Cloning Should Continue

The current prohibition against the use of federal funds to create a child through somatic cell nuclear transfer cloning should be continued, and voluntary concurrence from the private sector should be sought, according to the National Bioethics Advisory Commission (NBAC). The NBAC was convened to provide advice to the President on the protection of human subjects and the use of genetic information, but its mandate was expanded to include human cloning.

Nevertheless, the commission indicated that the prohibition against reproductive cloning should not interfere with other areas of scientific research, such as nonreproductive human cloning research involving human DNA sequences and cell line cloning, and restrictions should not be placed on the use of the somatic cell nuclear transfer technique with animals. In the latter instance, the commission concluded that institution-based animal protection committees will be able to monitor attempts to clone animals and ensure their welfare using existing regulations.

The commission delivered its recommendations to the President June 9. President Clinton had requested the report on human cloning in late February in the wake of the announcement that Scottish scientists had successfully cloned an adult sheep using a technique known as somatic cell nuclear transfer. In February President Clinton issued a temporary moratorium on federally funded human cloning research and charged the commission to "conduct a thorough review of the legal and ethical issues raised" by the possibility of cloning humans and to recommend in its report "possible actions to prevent its abuse." He also asked the private sector to honor the moratorium until the NBAC report could be completed.

The commission concluded that "at this time it is morally unacceptable for anyone in the public or private sector, whether in a research or clinical setting, to attempt to create a child using somatic cell nuclear transfer cloning" and urged that all those involved in this area to comply with the federal moratorium because of both safety and ethical concerns. The commission also urged professional and scientific societies to make clear to their members that any attempt to create embryos by somatic cell nuclear transfer at this time would be an "irresponsible, unethical, and unprofessional act." It recommended federal legislation to prohibit cloning in both research and clinical settings but with a "sunset" clause so that experts can revisit the situation in three to five years.

In its report, the NBAC acknowledged the different ethical and religious perspectives and traditions surrounding the debate over somatic cell nuclear transfer technology. It recommended that, "the federal government, and all interested and concerned parties, encourage widespread and continuing deliberation on these issues in order to further our understanding of the ethical and social implications of this technology and to enable society to produce appropriate long-term policies regarding this technology should the time come when present concerns about safety have been addressed."❖

American Psychological Society Honors Edward Taub

APS member **Edward Taub** was honored by the American Psychological Society, which named him a William James Fellow for his "fundamental discoveries in the field of behavioral neuroscience and for his application of these discoveries in the development of innovative treatments in the field of behavioral medicine." The award was presented at the American Psychological Society annual meeting in Washington, DC, in June.

The American Psychological Society honored Taub for his research demonstrating that there is residual guidance function in limbs from which sensation has been surgically abolished. This overturned the understanding that had dominated neuroscience for the better part of this century. Taub's work "revolutionized the entire preexisting concept of purposive movement and focused attention on the existence of guidance mechanisms enclosed entirely within the central nervous system," according to the American Psychological Society citation. It further led Taub to develop a theory of "learned nonuse" to explain some of the motor impairment that occurs after neurological injury and enabled him to develop the constraint induced movement therapy to help restore some motor function in patients who have suffered from stroke or traumatic brain injury.

The award citation also mentioned Taub's pioneering work in developing thermal biofedback, which has been used to relieve the symptoms of Raynaud's disease, hypertension, migraine headaches, and other stress-related conditions. It further noted that Taub has collaborated with other investigators to show that massive cortical reorganization takes place in adult mammals, including humans, following neurological injury. This reorganization is the basis for phantom limb pain in human amputees and is strongly correlated with tinnitis. ❖

Public Affairs

FASEB Recommends Graduate Student Policies

Recognizing that the number of biomedical scientists has grown while the number of faculty positions has remained stable, FASEB recommends that current data on employment be made readily available to students of the biomedical sciences but that no national effort be made to regulate the number of US and foreign students who seek PhD degrees.

These were among the recommendations of the recently released FASEB Consensus Conference on Graduate Education. The conferees representing the FASEB member societies met last October to discuss the implications of dramatic changes in the job market for biomedical PhDs. These changes include an increasing number of foreign students seeking PhD training in the US and the increasing proportion of jobs located in industry.

The conferees noted that while there are indications that nearly all biomedical science PhDs are fully employed, many of them are working for industry rather than holding the "faculty positions in prestigious universities that they may have aspired to during their training." Because predicting the job market in the biomedical sciences 10 years hence is highly uncertain, the conferees urged that students and faculty both be made aware of the "broad range of career options for a biomedical PhD, including opportunities outside the academic sector."

The conferees recommended that students be admitted to graduate programs based upon their ability and that "unqualified predoctoral applicants should not be admitted simply to meet the workforce needs," such as for teaching or research assistants. The conferees also recommended that "the number of non-US predoctoral students should not be capped arbitrarily, and there should be no discrimination with regard to race or gender for admission into graduate programs."

The conferees recommended that students be "trained in depth in one specific area of biology and as well as educated broadly in many other areas in the biological and physical sciences" to equip them for the future. They further recommended that students be trained in communication skills, working as part of a team, and in the use of modern information technology. They urged faculty committees to review the progress of graduate students at least annually to ensure degree completion in no more than five to six years and emphasized the importance both of mentoring and of faculty being supportive of the range of career options their students might follow.

The full text of the report is available on the FASEB public affairs home page at **http://www.faseb.org./opa**.❖

In Brief ...

Animal Protests Sour Public

The animal rights cause may be on the decline in the eyes of the public, according to two popular magazines. *US* magazine recently carried an article on decline in celebrity support for People for the Ethical Treatment of Animals (PETA). Key factors in the decline are believed to be efforts by research supporters to confront celebrities with the incompatibility of simultaneously supporting AIDS research and animal rights, as well as distaste over PETA's apparent connection with those who commit acts of violence in the name of animal rights.

New York magazine, which only a few years ago crowned animal rights as "the number one hip cause on the planet," has also noted the fickleness of celebrity interest in the cause. "What's simply smashing today is dead and buried tomorrow — and that goes for bandwagon causes as well as hemlines," said an article describing the failure of PETA's anti-fur campaign in the fashion world.

ALF Lets Animals Die in "Act of Love"

The Animal Liberation Front (ALF) claimed responsibility for releasing 10,000 mink from a farm in Mount Angel, OR, in June. According to the fur industry, this is the largest mink raid in US history and the 25th incident of mink release in the US during the past 18 months. Thousands of the animals died, and only 2,000 were retrieved. Some were trampled and killed during the raid, and others of the domesticated animals died in the wild, including baby mink that were not yet weaned. ALF, which is the underground terrorist arm of the animal rights movement, sent a communique to other animal rights groups and the media taking credit for the raid as an "act of love." The FBI is investigating the case because the Animal Enterprise Protection Act of 1992 makes it a federal crime to cause more than $10,000 in damage to an animal facility.

Conventioneers Attack McDonald's and Fur Store

Animal rights activists meeting near Washington, DC, for the June 26-30 Animal Rights '97 National Convention went on a rampage at a fast food restaurant in Arlington, VA. According to press accounts, on Sunday, June 29, activists left the Crystal City Hyatt Regency and walked over to a nearby McDonald's. Some blocked the entrances while others inside intimidated diners and employees by throwing condiments including a large container of ketchup. When police arrived to deal with the situation, the activists threatened violence and spit on some officers. Two blocks around the McDonald's had to be closed off for three hours, and the police had to use pepper spray to control the demonstrators. Eighteen were arrested.

The previous day, 60 activists attending the same convention tried to storm a fur store in downtown Washington, DC. They burned something in the doorway of Miller's Furs and kicked in the store's display windows, creating a disturbance that forced staff and

customers to remain inside the store. Police were on the scene but took no action and made no arrests.

Court: British Activists Libeled McDonald's

On June 17, the longest trial in British legal history came to an end when Judge Rodger Bell ruled that two animal activists had "injured the … reputation" of McDonald's by publishing a pamphlet blaming the fast-food chain for starvation in the Third World, destruction of rainforests, and selling unhealthy food. The judge ordered activists Helen Steel and Dave Morris to pay McDonald's 60,000 pounds, or about $98,000. McDonald's had indicated that its intention was not to financially destroy the activists, who are described as "penniless," but rather to get them to stop repeating their accusations.

In 1984, Steel, Morris, and three other activists belonging to a group calling itself London Greenpeace (not affiliated with Greenpeace International) published a six-page pamphlet containing the objectionable statements. In 1989, McDonald's sent libel writs to London Greenpeace, and three of the five leaders apologized for the statements. However, Steel and Morris refused, and the case went to trial, with the activists serving as their own counsel in what came to be known as the "McLibel" case. Court proceedings began in June 1994 after 28 pretrial hearings and ended in late 1996. It involved 313 days of testimony from 180 witnesses, 8 weeks of closing speeches, and 6 months of deliberation. Topics covered in the testimony ranged from food packaging and manufacturing to labor practices, the destruction of rain forests, and health issues. The verdict itself was three volumes.

Judge Bell delivered a summation of the verdict at a June 17 hearing that lasted nearly two hours. Judge Bell noted that while some of the defamatory statements were true, he found the majority to be untrue. "In my view, the unjustified allegations of blame for starvation in the Third World and destruction of rainforests and of knowingly selling food with a serious risk of damaging their customers' health are particularly damaging," Bell said. "On the other hand, there has been an element of justification in relation to the plaintiff's advertising, their responsibility for some cruelty towards some of the animals that are reared and slaughtered for their productions ... and low pay." He indicated that the amount of damages awarded was based on consideration of what statements were true and untrue.

Prior to the release of the verdict, Steel and Morris said that they would appeal and might take the case to the European Court of Human Rights.

PETA Flaunts Court Order

Seeking to publicize its undercover "investigation" of a contract research laboratory that tests drugs and consumer products for other companies, People for the Ethical Treatment of Animals (PETA) twice violated a federal court order prohibiting release of further information about the laboratory. According to US District Court Judge Rebecca Beach Smith, the actions of PETA co-founder Ingrid Newkirk violated "not only the letter but the spirit" of a temporary restraining order imposed after Huntingdon Laboratories sued PETA for illegally disseminating trade secrets and proprietary information.

In early June, PETA denounced Huntingdon for animal cruelty at a press conference where it released a videotape made by a PETA infiltrator that purported to show Huntingdon laboratory technicians handling monkeys roughly, yelling at them, and throwing them into cages. PETA also alleged that one technician cut into a monkey before it was dead. PETA identified Huntingdon clients from confidential information supplied by its informant and began a campaign to pressure them to halt their business with the firm. One company canceled planned testing of an osteoporosis drug after actress Kim Basinger made a public appeal for Huntingdon to spare 36 beagles whose legs were to be surgically fractured and splinted to determine whether the drug had an effect on bone healing.

In response to PETA's charges, Huntingdon Life Sciences President Alan Staple stated that the facility was in compliance with federal animal care laws. USDA announced an investigation of the PETA allegations, and Huntingdon, which is an American Association for Accreditation of Laboratory Animal Care-accredited facility, requested that the government expedite its review. On June 16, Huntingdon filed suit alleging that PETA investigator Michele Rokke lied about her background and qualifications when she applied for a job at the company and that she violated the employee confidentiality agreement she had signed by releasing videotapes she had made inside the facility and revealing trade secrets about what companies' products Huntingdon was testing. According to press reports, the suit also alleges that Rokke "cajoled" co-workers into saying things that suited her purpose and further stated that she should have reported any abuses she witnessed to the authorities, rather than to PETA, which disseminated them in an "inflammatory and misleading" way.

The Huntingdon suit is similar to one involving ABC-TV and the Food Lion grocery chain in which ABC producers lied to get jobs at a grocery store and used hidden cameras to film employees packaging for sale what a reporter on the news program Prime-Time Live said was spoiled meat. Food Lion won a $5.5 million fraud judgment against ABC in December in North Carolina after its lawyers focused on the deception used by the producers.

After the Huntingdon suit was filed, Judge Smith issued a temporary restraining order prohibiting PETA from releasing any more information about the company until the suit could be heard, which was expected to take place in late July. Newkirk nonetheless participated prominently in a July 3 protest outside Huntingdon where actress Basinger made another public appeal for custody of the beagles that were to have been used in the osteoporosis drug research. (Huntingdon refused to release the animals, which had been purpose-bred for research and were not socialized.) Judge Smith also found that PETA violated the restraining order by issuing a another press release alluding to allegations of animal cruelty and listing Huntingdon's clients.

Huntingdon Life Sciences is a wholly-owned US subsidiary of a British company with the same name. Last year, the British Union to Abolish Vivisection released an videotape secretly made by a former employee of a Huntingdon laboratory in Great Britain. That tape showed a technician shaking and slapping a laboratory dog. The technician's actions were condemned by the British scientific community. After an internal investigation, the company fired three technicians, demoted two managers, replaced one department head, and upgraded technician training and competency assessment programs. Two of the fired technicians also face animal cruelty charges.❖

Eight New Physiology Outreach Teams Named for 1997-98

At EB '97, Council announced the approval of eight new Local Outreach Teams (LOTs) nationwide to conduct professional development workshops for middle and high school teachers within their local communities. The workshops will allow teachers to explore hands-on, inquiry-based physiology activities appropriate for use in their classrooms. Each LOT is chaired by an APS member who will work with other physiologists, local teachers, and local science education administrators to present these activities to their middle and high school colleagues. The 1997-98 LOTs join a network of 11 APS Local Outreach Teams that have delivered physiology training materials to more than 200 science teachers nationwide over the past two years. Several of the new LOTs will involve past APS Summer Research Teacher (SRT) fellows as team members.

New and current LOT members had the opportunity to meet each other at a special reception at EB '97. Current LOT members offered suggestions and advice to the new teams and informally outlined how they delivered the physiology activities to their local teachers.

Each LOT will provide a one- to two-day workshop for 25-35 science teachers in their communities in the fall of 1997. The workshop also will include a spring follow-up for teachers to discuss how they implemented the activities. Teachers attending the workshop receive a stipend for their attendance and/or laboratory materials for the physiology activities.

Workshop dates have not yet been determined. For additional information about an LOT team near you, please contact Marsha Lakes Matyas, APS Education Officer, 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel: 301-530-7132; fax: 301-571-8305; e-mail: educatio@aps.faseb.org.❖

The newly named LOTs are chaired by the following APS members:

Candace B. Matthews, US Army Research Institute of Environmental Medicine

C. Subah Packer, Indiana University School of Medicine

Barry T. Peterson, University of Texas Health Science Center at Tyler

James C. Schadt, University of Missouri at Columbia

R. John Solaro, University of Illinois at Chicago

Gerald K. Weiss, University of New Mexico School of Medicine

James Will, University of Wisconsin at Madison

Stephen C. Wood, East Carolina University

Burroughs Wellcome Fund Fellowships

Career Awards in the Basic Biomedical Sciences:

Awards provide US and Canadian scientists with $500,000 to support their advanced postdoctoral training and initial faculty appointment.

Support for researchers in the basic biomedical sciences is available through Burroughs Wellcome Fund's (BWF's) Career Awards in the Biomedical Sciences. The competitive awards, open to US and Canadian postdoctoral scientists, provide support ranging from $412,500 for four years to $532,400 for six years to fund the advanced postdoctoral years and the first three years of faculty service. Recipients may spend part of the award period at an institution in the UK or Ireland.

BWF will make at least 18 career awards in 1998. **The application deadline is October 1, 1997.** Applicants must have completed at least 12 months but not more than 48 months of postdoctoral training by the application deadline.

Hitchings-Elion Fellowships:

Awards provide US and Canadian scientists with $150,000 for research training in the UK or Ireland.

These fellowships support US and Canadian postdoctoral scientists for two years of research training in the UK or Ireland and a third year in the US. Fellows may work in the basic biomedical sciences and in the behavioral sciences (with biomedical relevance). The competitive awards provide $50,000 per year for salary, research expenses, and travel.

BWF will make up to 10 fellowships in 1998. **The application deadline is September 2, 1997.**

The Burroughs Wellcome Fund is an independent private foundation established to advance the medical sciences by supporting research and other scientific and educational activities. For more information on the fellowships listed above, contact the Burroughs Wellcome Fund, 4709 Creekstone Dr., Suite 100, Durham, NC 27703. Tel: 919-991-5100; fax: 919-941-5884; e-mail: mailback@bwfund.org; Internet: **http://www.bwfund.org**.

New!

Education Outreach Resources

The American Physiological Society

ORDER NOW! Education Office, 9650 Rockville Pike, Bethesda, MD 20814-3991, (301) 530-7132, fax (301) 571-8305, educatio@aps.faseb.org, http://www.faseb.org/aps

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Each module contains a biography of a female science role model and related life sciences activities with a multidisciplinary focus.

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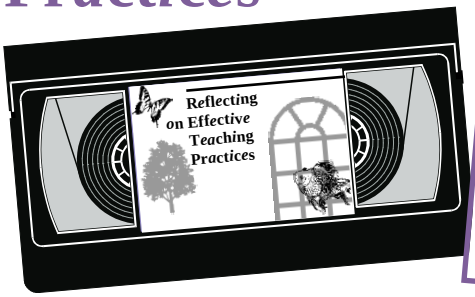

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This video is designed for just this purpose — as a tool to facilitate discussion and reflection on science teaching. It can be used in inservice workshops/preservice classes and by individual teachers or pairs of teachers as a mini-study and reflection activity. Discussion questions are provided.

NSTA Coincides with EB '97 for APS Summer Research Teachers

APS was well represented at the National Science Teachers Association (NSTA) convention in New Orleans, LA, April 3-6, 1997, providing workshops and materials to many of the 15,000+ attendees. The 1996 APS Summer Research Teachers (SRTs) attended NSTA, which, coincidently, immediately preceded EB '97 in New Orleans. APS had a booth on the NSTA exhibit hall floor, staffed by the APS Marketing and Education Departments. Past, present, and future summer research teachers were seen presenting at and attending workshops and helping out in the exhibit booth.

Numerous SRTs were presenters at workshops. Among those were **Bob Melton**, '93 SRT, from the Putnam City Schools in Oklahoma City, OK; **Lisa Bidelspach**, '95 SRT, Clear Creek HS in League City, TX; **Thomas Haren**, '96 SRT, McKinley Sr. HS in Canton, OH; **Larry Beck**, '97 SRT, Isaac E. Young MS in New Rochelle, NY; and **James Shaidnagle**, '97 SRT, Pattonville HS in Maryland Heights, MO.

Other presenters with APS connections included Houston Local Outreach Team Leader **Norman Weisbrodt** from the University of Texas Medical School in Houston; Columbus, OH, LOT member **Mary Lightbody** from the USI Middle School in Columbus; and *Frontiers in Physiology* Advisory Board member **Ann Haley-Oliphant** of Miami University, Oxford, OH. APS Education staff, **Marsha Lakes Matyas** and **Phyllis Edelman**, also were workshop presenters.

Our thanks go to all those with APS connections who attended and presented at NSTA, with a special thank you to all the '96 SRTs who helped spread the word about the APS *Frontiers in Physiology* program by donating their time at the exhibit booth. ❖

Women in Physiology Committee Holds Mentoring Workshop

The APS Mentoring Program for Women in Physiology sponsored its fifth annual mentoring program and reception at EB '97 in New Orleans, LA. The mentoring program is directed by the APS Education Office and the APS Women in Physiology Committee, chaired by **Kim Barrett** from the University of California at San Diego. The reception at EB '97 was once again well attended, as it has been in past years. The meeting provides the opportunity for interested individuals to learn about the value of the mentoring program and how to participate. Current participants were able to meet each other face-to-face, and committee members were available to answer questions and discuss issues with meeting attendees.

This year's speaker at the reception, **Helen J. Cooke** of Ohio State University, offered sound advice to graduate students, postdoctoral fellows, and new faculty members to help them attain success in their research careers. After her initial comments, Cooke then opened the floor to questions. APS Education Officer **Marsha Lakes Matyas** also presented general information about the program's goals and operation, and a brief summary of program statistics.

The mentoring program is accepting new applications from potential mentors and mentees on a continual basis. Application forms are available by contacting Marsha Lakes Matyas in the APS Education Office, 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel: 301-530-7132; fax: 301-571-8305; e-mail: matyas@aps.faseb. org. Questions can also be directed to members of the Women in Physiology Committee.❖

The Chateaubriand Fellowship

If you are currently working towards your PhD in science or engineering, or if you have completed your degree within the last three years, you may qualify for a fellowship from the French Government to conduct research in France. Your research would be performed in a French university, a school of engineering, or in a public or private laboratory. Candidates must be accepted by a French laboratory in order to be eligible for this fellowship program.

Starting in September 1998, fellowships are available for a 6- to 12-month period, with a monthly stipend of $1,800 for doctoral fellows and $2,200 for postdoctoral fellows. Health insurance and a roundtrip ticket are also provided.

Only completed applications received before December 1, 1997, will be accepted.

Applicants must be US citizens and registered in a university in the US or in a US National Laboratory.

For further information, contact the Embassy of France, Office for Science and Technology, 4101 Reservoir Road NW, Washington, DC 20007-2176. Tel: 202-944 6246; fax: 202-944 6244; e-mail: chateaubriand@amb-wash.fr; Internet: **http://www.chateaubriand.amb-wash.fr.**

Nonacademic Careers for Physiologists

Introduction

Our training as physiologists has traditionally been to follow the careers of our mentors in research and/or teaching. A weakness is the lack of openings for young scientists completing their training and of permanent jobs either at the bench or in the classroom for those who have been through several temporary positions after their postdoctoral training.

However, there are opportunities for trained scientists that are fulfilling and that contribute to science as much as, or possibly more so, than remaining at the bench. This article, taken from a presentation on nonacademic careers, will outline several alternative career paths for both beginning, midlevel, and senior career scientists in the public and private sectors. The discussion is not comprehensive but outlines tasks associated with some scientific jobs in the federal and state governments, as well as in the private and nonprofit sectors.

Extramural Scientific Positions at NIH

Basic types of extramural administrative positions for advanced, trained scientists at NIH include program directors or officers and scientific review administrators. These positions are referred to as health science administrators, specifically program administrators/officers/directors for those managing grants and contracts in the institutes and scientific review administrators for those involved in review.

There are two categories of program staff. Essentially, program directors are responsible for managing portfolios of pending and funded research grants, whereas program officers are responsible for pending and funded research contracts for each of the different institutes and centers. The job is a mixture of science and administration. These program staff are knowledgeable in their particular areas of science and often are required to answer questions covering scientific and medical issues related to particular topics. The program representative is responsible for knowing not only the science but also the community of researchers and practitioners in a particular area. The program representative is also on call to answer questions on the particular topic posed by other staff within that institute or other institutions, other agencies, by Congress, and by members of the public who might call NIH looking for solutions to a particular problem. With respect to the scientific community, program directors and officers are responsible to the researchers included in their specific portfolios, being available to answer both technical and administrative questions, and to make sure, to the degree possible, that grant money and administration of the grant are handled in a timely and appropriate manner. Program staff also advise applicants on submitting new applications or revising and resubmitting previously submitted applications and are responsible for discussing with applicants the meaning of scores and percentiles and their likelihood of funding. Essentially, the program director or officer acts as the front line of funded research.

A representative program director or officer in an NIH institute has the following specific responsibilities:

- Manages grants and/or contracts from post-review to award and post-award, including monitoring and evaluating research activities;
- Is available to principle investigators and/or contractors to answer questions about renewals, revisions, submission, funding opportunities, extensions, supplements, and anything else they want to ask about;
- Makes recommendations to Institute leadership regarding policy, implementation, scientific direction, and allocation of funding;
- Maintains scientific and administrative competence by attending conferences, interacting with experts, and taking additional formal training;
- Participates in cooperative efforts to accomplish the goals and targeted research areas of the program, the division, and the Institute; and
- Communicates and cooperates with other federal and private organizations on overlap, funding, and scientific and administrative issues.

In the review area, the Scientific Review Administrators (SRAs) are responsible for peer review of applications received for review and possible funding at NIH. SRAs are associated both with the Division of Research Grants, where review is largely done by chartered study sections, and with the review units of the different institutes and centers. Both groups are responsible for peer review, including organizing the study sections of specific areas of science, conducting the meetings of the study sections, making sure that all federal regulations and policies are met, and completing post-meeting activities, such as releasing resulting scores and summary statements. Some reviews are conducted as site visits, although most are done as organized meetings. SRAs become the “front line” of NIH to the extramural community, as they are the individuals with whom applicants first come in contact. They must maintain competence in their specific area of science to understand the nuances of the research and to identify the most qualified reviewers to ensure a complete, balanced, and competent review of applications. Professional activities include organizing workshops related to study section topics. Occasionally, SRAs are asked to participate on panels and committees as a representative of review and are often requested to present information on review to interested institutions.

Both program staff and SRAs are expected to maintain currency in their respective areas of science through a series of professional activities, and many are approved for such outside, non-job-related activities as teaching at local universities,

servicing professional societies, and occasionally conducting research.

NIH is not the only federal agency with these types of positions. Other federal agencies with similar positions for managing research include NSF, EPA, the Department of Defense, the Department of Energy, other components of the Department of Health and Human Services, and USDA. The list is not exhaustive but is presented as representative.

The bottom line for most positions is whether the applicant will be able to survive and prosper. To answer this question, the following table represents the pay scale for federal employees working the Washington, DC, area. These dollar amounts will differ somewhat for different cities in the US due to locality pay differentials, but with most of NIH being located in the Washington, DC, area, these pay scales are fairly accurate. Openings at NIH are posted weekly on the NIH Web page, with some descriptions of the required expertise and anticipated responsibilities. Contacts are provided for more detailed information. NIH program staff and SRA positions usually require experience as an independent researcher after graduation and postdoctoral positions, but is not necessarily a requirement at other institutions. Training for these positions is available for newly hired scientific administrators.

Table 1. Annual Federal Pay Scales for the Washington, DC, Area

GS 11	$38,330 to $49,831
GS 12	$45,939 to $59,725
GS 13	$54,629 to $71,017
GS 14	$64,555 to $83,922
GS 15	$78,466 to $98,714

State Scientific Positions

State agencies, including health and environmental departments, also employ trained scientists for a variety of health-related positions. Many states support research through either intramural laboratories or extramural grants and contracts, depending on the size and budgets of the state and their particular needs and interests. In those states supporting extramural research, there is a need for research portfolio managers who act in the same capacity as NIH or other federal managers.

In addition, information extracted from job descriptions from two state health departments indicated the need of highly trained scientists to provide such important tasks as guidance and support to different agencies within and between states and the federal agencies. These individuals essentially become the front line of information on specific topics for that state, serving both the scientific and administrative communities and the public. At the state level, knowledge often is required to be broader in terms of science and policies than at the federal level, primarily due to the smaller number of associates. Job activities will differ by the state, their budgets, and needs. A representative table of pay scales taken from published material from one state follows, but it must be understood that, like job activities, pay scales will differ widely according to state budgets, types of positions, and general cost of living standards in different areas.

Private Sector Positions

In addition to federal and state government positions, there is also a wide range of opportunities for scientists in the private sector. Ever since the passage of the National Environmental Policy Act of 1971, private firms and other organizations have found it increasingly beneficial financially to employ professional scientists directly, as opposed to maintaining limited consulting agreements with university researchers and teachers. The consulting and support services types of positions in the private sector have further increased and expanded to include a wide variety of fields of study, including health and related physiological sciences. These are not research or teaching positions but more related to assisting governmental agencies in the management and coordination of programs. Examples of tasks associated with private and nonprofit consulting firms that employ trained scientists, include:

- **Manage research programs:** Government agencies contract with private sector firms to either assume the responsibility of portfolio management or to provide advice and guidance on program direction and development.
- **Direct consulting to federal agencies:** Private sector firms utilize trained scientists to provide advice, guidance, documents, and assistance in specific or broad areas of science. In addition to specific science, advice can include budgeting, assisting in coordinating activities between the contracting agency and other organizations, and occasionally representing the agencies in specific activities.
- **Support services:** Private sector firms also utilize scientists in additional activities, such as organizing meetings and workshop and preparing documents, including, but not limited to, planning and summary reports.

Table 2. Pay Scales - One State Agency

Level I	$45,240 - $54,564
Level II	$49,668 - $59,928
Level III	$59,928 - $72,504
Level IV	$70,812 - $85,644
Level V	$80,708 - $98,880

For many of these private and nonprofit firms, hiring can include trained scientists from the bachelor's to doctoral degree level, and can usually provide some training before having the scientist participate in responsible positions. Pay scales, much like state agencies, are dependent on geography, the level of expertise required for the position, and the past experience of the applicant. Most larger private sector firms rely on nation-

ally available pay scale rates to ensure some equity, but as this is a competitive process, pay scales can be adjusted accordingly. Job openings are usually advertised. However, it is sometimes difficult to identify positions for physiologists; posted titles in area newspapers are not always identifiable as an opening for a physiologist. In the *Washington Post*, titles in the employment section can include biologist, environmentalist, health scientist, and scientist.

Jobs are not necessarily restricted to private sector firms. Similar nonresearch, nonteaching positions are also available for physiologists in such areas as:

- Trade organizations
- Nonprofit organizations
- Scientific societies
- Lobbying organizations
- Congressional offices
- Legal firms

This paper is based on a presentation at EB '97, which had a wide variety of exhibits by commercial companies, in many cases with trained scientists assisting in the operations, both in sales and in development.

This list is in no way comprehensive, and each person contacted for advice on the scope of this paper has provided additional categories that could be included. In addition, for the scientist who is forced economically to leave the laboratory/classroom, many of these private firms or nonprofit organizations provide opportunities for their employees to have outside teaching activities and even be directly involved with or collaborate in research, as it is recognized that such activities maintain the scientific credentials of their employees.

Career Effects of Nonacademic Careers

Choosing the type of jobs outlined above will certainly remove a trained physiologist from the direct impact on the selected area in which he/she first trained and invested so much time and concentration. However, there are a number of mitigating points and some advantages. First, an individual's emphasis becomes broader, with some describing it as a higher plane of contributing to science, both directly with advice to the individual investigator and more broadly through effects on policy. This latter aspect is critically important, that of having trained and knowledgeable scientists involved in the development of policy at the administrative and Congressional level. Publishing remains an option in many cases, either of the work being done as part of the job or through outside activities. This includes collaborations with active researchers where possible, although the emphasis becomes broader rather than focused on a specific point of scientific development. Activities in many agencies include establishing new programs or directions, often as a result of organizing workshops and seminars by scientists, as a means of developing the background for policy decisions and determining the direction of specific research questions. Many of these workshops are published. Such activities are dependent on the imagination and initiative of the individual, but these qualities are the same as those who are successful in research.

For those retaining a commitment to teaching the next generation of scientists, this also often remains an option. Most organizations encourage or at least condone teaching at most levels at colleges and universities, both for giving back to the field and for retaining knowledge of developments in different fields. Pay reimbursement is also an option for teaching but is dependent on the policies of the organization or agency with which you are employed.

Finally, scientists will often find that they can become more active in scientific technical societies, including holding board positions.

Other advantages of holding jobs in the private, public, and nonprofit sectors can include more regular hours, higher pay, a stable position, and the lack of a need to prepare competitive grant applications. For many in public service, there is also the satisfaction of performing a public service while retaining an interest in and contributing to science. This contribution may no longer be specifically publishing new data but is broader, often more policy oriented, and more complex.

There are some disadvantages to the nonacademic environment, and some of these have been presented. A scientist who leaves the laboratory or the classroom is no longer fully committed to these activities. The concentration and primary responsibilities are focused elsewhere. If a scientist has the opportunity to conduct some research or to teach, it is a secondary function. There will no longer be primary academic activities, including guiding new students. The person will cease to be directly involved in hands-on science, losing some depth of knowledge of a specific area of science, including the insights and understanding that come with being close to the techniques and specific developments in an area of science. For some, there also might be reduced pay, depending on the type of position, location, and type of responsibility. Finally, some government positions involve a certain degree of tolerance for bureaucratic rules, but apparently this is also prevalent in academic environments, although the emphasis might be different.

As the author of this article, I left the bench/classroom right after the end of my postdoctoral position and went directly to the private sector. Since then, I have held several positions in the private and nonprofit sectors, and am now in review at NIH. As part of my nonacademic positions, I made contact with outstanding scientists in most of the different types of organizations listed in this article, including those only listed and not described. The range of opportunities expands as one leaves the confines of academia. I can honestly say that I have found a great deal of personal satisfaction in the goals of science from a broader, more policy-oriented position. I can also attest to the available opportunities of outside activities. Working at NIH also provides access to a weekly, two-page list of seminars and workshops on all areas of health science, access to the National Library of Medicine, daily dis-

cussions with leading scientists, and the personal reward of knowing I am doing something to enhance the direction of science.

Summary

The message of this article is to illustrate that there are rewarding careers in physiology beyond the laboratory and/or the classroom. For the researcher, the focus becomes broader. For the teacher, the opportunity is seeing the impact of science and affecting the future of science in a broader manner. You can have an impact on the direction of science and its implications to the public, whether you settle in the private or public sectors. Your limits are your imagination, your energy, and your initiative.❖

Lee A. Rosen
Division of Research Grants, NIH

Positions Available

Tenure Track Positions. The Department of Physiology and Biophysics at the University of Tennessee at Memphis is actively recruiting for two tenure track faculty positions. Academic rank is dependent upon experience and qualifications. Candidates should have a PhD or MD degree, a good track record in publications, and postdoctoral research experience with a background in cellular and/or molecular biology. The abilities to establish an independent research program in the areas of cardiovascular, gastrointestinal, developmental, endocrine, or epithelial physiology and to engage in teaching activities of the department are expected. Applicants should send a curriculum vitae, copies of three representative publications, and the names of three references to: Leonard R. Johnson, Thomas A. Gerwin Professor and Chair, Department of Physiology and Biophysics, University of Tennessee at Memphis, 894 Union Avenue, Memphis, TN 38163. The University of Tennessee is an EEO/AA/Title VI/TitleIX/Section 504/ADA/ADEA employer. Minorities and females are encouraged to apply.

Associate Professorship in Human Physiology/Exercise Physiology, Department of Human Physiology, Institute of Sport Sciences, University of Copenhagen, Denmark. A position as Associate Professor in Human Physiology within the field of exercise physiology, with special reference to control of circulation and interaction between metabolism and circulation, is available as of January 1, 1998. Candidates should have a PhD, at least two years postdoctoral teaching experience, and a good track record of publications in the area. For the full text of the announcement of the position in English, including required qualifications and specifications for applications, please contact Institute Director Bodil Nielsen Johannsen by fax at +45 35 32 15 67 or e-mail: Bnielsen@aki.ku.dk. **Closing date: September 22, 1997**.

Attention Authors!

Manuscript Submission Fee Required effective January 1, 1998

All manuscripts submitted to the *American Journals of Physiology* and the *Journal of Neurophysiology* must be accompanied by a Mandatory Submission Form and a manuscript submission fee of US$50. This fee is a processing fee, not a reviewing fee, and is nonrefundable. Payment must be made at the time of submission in US dollars only, by money order, check drawn on a US bank, credit card (Visa/MasterCard), or institutional purchase order. Checks should be made payable to The American Physiological Society and should indicate clearly the corresponding author's name. No wire transfers will be accepted. Please see Instructions for Authors on the Web at **http://www.faseb.org/aps/publications** or see the June and December issues of the journal for more information.

CAREER NEWS

Let *The Physiologist* help you find the right job match

Both a print and online career resource, *The Physiologist* is the official newsletter for The American Physiological Society. It is published bimonthly and is also available electronically through our Web Site at http://www.faseb.org/aps.

Easily accessible and highly visible, *The Physiologist* is mailed to over 8,000 physiological life scientists (including students). This readership pool provides you with many choices for a good job match.

Very cost effective, *The Physiologist* charges only $50.00 for any size classified ad or position listing. This one-time charge of $50.00 will also keep your ad on our Web Site until the deadline date is reached.

Send us your Ad or Listing Today...in 4 easy steps:

1. Attach an original of your ad/listing with a check or purchase order payable to "The American Physiological Society" *(Please note: EOAAE indicates Equal Opportunity /Affirmative Action Employer and appears only when given on original copy.)*
2. Indicate on this line _____ the month you wish your ad/listing to be published: *(print issue published Feb, Apr, Jun, Aug, Oct, Dec...and copy must be received before the 1st of the month, one month preceding the issue month. Your ad will appear daily on the Web until your deadline date is reached).*
3. Complete the following information: Name (please print) _____

   Signature _____ Phone _____ Fax _____
4. Mail this completed form (with copy and payment) to:
   The Physiologist, APS, 9650 Rockville Pike, Bethesda, MD 20814-3991 **or** for faster service, fax this form (with copy and purchase order) to 301-571-8305.

For further information, contact The American Physiological Society at:
(Phone) 301-530-7165 (Fax) 301-571-8305 (Email) mlowy@aps.faseb.org

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(f:/home/spokroy/career8a)

Designing an Effective Web Page

So you want to put up a Web page. With more than 16 million Websites out there already, what are you going to do to make yours unique? Who is your target audience, and what is your primary focus? If your goal is to inform, you may wish to consider a straightforward format, with limited graphics and colors. If your goal is to get someone's attention, then there are several sites out there that offer regular and animated .gif files — a file format for graphics on the Web — and wallpapers or backgrounds for free download and use. You can add wallpaper or change the colors of your background and text. There are many very attractive Websites out there to see, provided that your equipment is as powerful as the designers.

In looking at some of these "pretty" sites, however, I have found myself frustrated at the amount of time I have to wait to get to what I want. If I want to find a schedule of events, I do not want to wait for a blinking icon to load on the title page to get to the link to enter the site to get to the link to the public affairs section, which has a WAV file that I cannot play because I do not have a sound card installed, to get to the calendar page to select the month and date, and so on. This is, after all, the information age, and I surf the Web to secure information.

That is not to say that an informative Web page cannot be attractive. For example, take the APS Home Page at **http://www.faseb.org/aps**. It has a subtle wallpaper on each of its title pages and one blinking graphic indicating the last time the page was updated. It also has buttons for links, but if you look carefully, you will notice there are duplicate links at the bottom of the page that are not graphic intensive. This allows anyone with or without the ability to view graphics to access our information.

One simple way to spice up your page is with color. If a background color is not specified, then your background will default to gray with black type. If you would like to change the colors on your pages, one good resource is at **http://colors.infi.net/colorindex.html**. This page offers swatches and codes for a rainbow of colors. You can use these codes to change the colors of your backgrounds and type. Remember that if you use a light-colored type, like white or yellow, your viewer probably will have trouble printing it. Using a dark type, such as the default black, will prevent this problem.

Just remember to keep your Web page simple. Simple works.

If you have a question regarding Website design, or if you have found an interesting resource for Web page design, please let me know. I can be reached via e-mail at plombard@aps.faseb.org.❖

Academy Paper "Research in a Changing World" on Web

In a paper released recently, the national academy complex recommended that the federal government adopt a special budget category known as Federal Science and Technology (FS&T) to ensure that research receives appropriate funding.

The paper is entitled "Science and Engineering Research in a Changing World" and reiterates several objectives the national academy complex — composed of the National Academies of Science and Engineering, the Institute of Medicine, and the National Research Council — has stressed recently.

The FS&T budget would allow the federal government to shift funds toward high-priority fields, reduce or close projects that have become less important, and incorporate the results of program and agency evaluations. The paper states, "Particularly in times of fiscal stringency, a unified budget for science and technology would bring coherence to what has previously been a piecemeal approach to policy-making."

"Science and Engineering Research in a Changing World" is part of a series of six papers released by the national academy complex this year with the theme of science's role in the nation's future. The series is entitled "Preparing for the 21st Century." The other papers in the series include: "The Education Imperative," ""Focusing on Quality in a Changing Healthcare System," "The Environment and the Human Future," "Technology and the Nation's Future," and "Challenges Facing a Changing Society." The complete series is available via the World Wide Web at **http://www2.nas.edu/21st**.❖

PubMed Now Open to the Public

A ceremony was held on Capitol Hill recently to announce the National Library of Medicine has opened its database of medical information to the American public for free through the Internet.

The service from the National Library of Medicine is called PubMed and is designed to make a database of potentially lifesaving information available to citizens seeking solutions to medical problems. PubMed's database includes more than nine million medical articles from 70 countries and is growing at the rate of 1,000 articles per day. Among a host of scientific journals, PubMed links to full-text versions of articles appearing in the *Journal of Applied Physiology* through *JAP Online* and to abstracts of articles from other APS journals.

The URL for PubMed is **http://www.ncbi.nlm.nih.gov/PubMed**.❖

Web sites you will need

Clip this page now...
so you can find the latest in physiology research
quickly and easily!

On Line Now!

The American Physiological Society
http://www.faseb.org/aps
Journal of Applied Physiology
http://www.jap.org
The Physiologist
http://www.faseb.org/aps/tphys.htm
APStracts
http://www.uth.tmc.edu/apstracts

Coming Fall of 1997!

Journal of Neurophysiology
http://www.jn.org

Coming Spring of 1998!

The American Journal of Physiology (consolidated)
http://www.ajpcon.org
AJP: Cell Physiology
http://www.ajpcell.org
AJP: Endocrinology and Metabolism
http://www.ajpendo.org
AJP: Gastrointestinal and Liver Physiology
http://www.ajpgi.org
AJP: Heart and Circulatory Physiology
http://www.ajpheart.org
AJP: Lung Cellular and Molecular Physiology
http://www.ajplung.org
AJP: Regulatory, Integrative and Comparative Physiology
http://www.ajpregu.org
AJP: Renal Physiology
http://www.ajprenal.org
Advances in Physiology Education
http://www.ajpadvan.org

Above web sites owned by The American Physiological Society: (phone) 301-530-7164 (fax) 301-571-8313 (email) info@aps.faseb.org

APS Members Richard W. Tsien and Harald Reuter Elected to National Academy of Sciences

The National Academy of Sciences (NAS) announced the election of 60 new members and 15 foreign associates from 11 countries in recognition of their distinguished and continuing achievements in original research. Two APS members, **Richard W. Tsien** and **Harald Reuter**, were among those selected. Biographical sketches on each follow.

Election to NAS is considered one of the highest honors accorded to a US scientist or engineer. Current active members number 1,773. Foreign associates are nonvoting members of NAS, with citizenship outside the US. The total number of NAS foreign associates is 309.

NAS is a private organization of scientists and engineers dedicated to the furtherance of science and its use for the general welfare. NAS was established in 1863 by a Congressional act of incorporation, signed by Abraham Lincoln, that calls on the academy to act an official adviser to the federal government, upon request, regarding matters of science or technology.

Richard W. Tsien

Richard W. Tsien is a leading scientist in the field of molecular and cellular neurobiology. He is best known for his work on voltage-gated Ca^{2+} channels, vital signaling proteins that link neuronal excitation to cellular responses such as neurotransmitter release, metabolism, gene expression, altered excitability, and neurotoxicity.

Richard W. Tsien

Tsien's research has been critical to our current understanding of Ca^{2+} channels. His contributions include discovering novel types of Ca^{2+} channels and establishing their functional classification, analyzing their cellular distribution and diverse roles in excitation-secretion and excitation-transcription coupling, characterizing their biophysical properties at the single-channel level, uncovering diverse mechanisms of modulation by various signaling pathways, and explaining how these channels function as Ca^{2+}-selective pores. As a result of such efforts, Ca^{2+} channels are now regarded as model systems for understanding selectivity and modulation of ion channels in general.

Tsien is the George D. Smith Professor of Molecular and Cellular Physiology at Stanford University School of Medicine. He has directed the Silvio Conte-National Institute of Mental Health Center for Neuroscience Research since 1991.

Born in China and now a US citizen, Tsien received BS and MS degrees in electrical engineering from the Massachusetts Institute of Technology. He studied under Denis Noble at Oxford University as a Rhodes scholar and earned a PhD in biophysics there in 1970. His interest in neuroscience dates back to the textbook, *Electrical Current Flow in Excitable Cells*, which he began to write with Julian Jack and Noble upon his arrival at Oxford. The book, originally published in 1975, contains theoretical descriptions of properties of excitable membranes and electrical cables. It has been reprinted several times and is generally regarded as a classic reference.

Tsien began his career as an independent investigator at Yale University School of Medicine and worked in the Department of Physiology there from 1970 to 1988. During the early years of his work at Yale, before turning to the study of neurons, he developed heart cells as a model system for understanding how ion channels are involved in cellular signaling. Work in his laboratory led to significant advances in understanding of cardiac ion channels and their contribution to electrical and mechanical activity in the heart under normal and pathological conditions. Tsien's interest in the cardiovascular system has continued up to the present but has been directed toward understanding Ca^{2+} channels in cardiac and vascular smooth muscle.

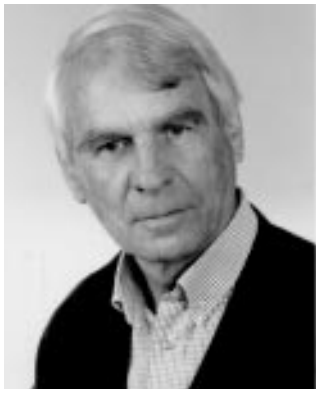
Tsien left his professorship at Yale in 1988 to come to Stanford, where he promptly established the new Department of Molecular and Cellular Physiology. The department, which Tsien chaired from 1988 to 1994, includes a subgroup of highly effective and interactive neuroscientists. For his efforts in creating a new course in pathophysiology linking advances in molecular genetics to physiology, Tsien has twice won the Kaiser Award for Outstanding and Innovative Teaching, in 1991 and 1995, respectively.

Tsien is a member of the Institute of Medicine and the Academia Sinica. He has been honored with many awards, including the Cole Award of the Biophysical Society, the Sherrington Lectureship of the Physiological Society, and, most recently, the Walter B. Cannon Memorial Award from APS. Since 1966, Tsien has published more than 145 articles and books. He also has trained a considerable number of postdoctoral fellows and graduate students who have gone on to successful careers in neuroscience.

Harald Reuter

Harald Reuter is Professor and Chairman in the Department of Pharmacology at the University of Bern in Switzerland. He received his medical diploma from

the University of Freiburg (Germany) in



Harald Reuter

1959 and completed his MD in the Department of Pharmacology at the University of Mainz in 1960. Reuter was an assistant professor at the University of Mainz until 1969, when he took his present position. Reuter spent several years in the US, first as a visiting scientist at the Mayo Clinic in 1967-68 and later as Visiting Professor of Physiology at Yale and Stanford universities.

Much of Reuter's earlier scientific work concerned the characterization of Ca^{2+} currents and Ca^{2+} transport in heart cells. After his initial discovery of a Ca^{2+} current in heart cells in 1967, Reuter went on to characterize the relevance of this current for excitation and excitation-contraction coupling in cardiac muscle. Together with G. W. Beeler, he demonstrated the importance of the Ca^{2+} current during the plateau phase of the action potential for the filling of intracellular Ca^{2+} stores. His findings that catecholamines greatly enhance this current and that cAMP analogues mimic the effect of catecholamines probably were the first demonstrations of modulation of a voltage-gated ion channel.

Later on, Reuter's group described properties and modulation by cAMP of single Ca^{2+} channels. Mechanisms involved in functional expression and localization of neuronal type Ca^{2+} channels has been a more recent field of activity of Reuter's group. Molecular mechanisms involved in voltage-dependent inactivation and dihydropyridine binding in splice variants of human L-type have also been studied. Reuter's recent studies have also concerned the localization of the Na-Ca exchanger in presynaptic boutons and its functional significance in synaptic transmission in hippocampal cells. Together with colleagues from Stanford University, he has quantitatively measured the kinetics of vesicle cycling in single boutons.

Reuter has received numerous honors, including the Award for Outstanding Research of the International Society for Heart Research, the Marcel Benoist Prize of the Swiss government, the Schmiedeberg-Plakette of the Deutsche Gesellschaft für Pharmakologie und Toxikologie, and the Cole Award of the Biophysical Society. He has been elected as a member to five national and international academies.❖

Two APS Members Selected as HHMI Investigators

Two APS members, **John Maunsell** from Baylor College of Medicine and **Gerald I. Shulman** from Yale University School of Medicine, were selected as Howard Hughes Medical Institute (HHMI) investigators in a nationwide competition.

Seventy investigators in all were selected by HHMI in its largest expansion ever by nearly 25%. HHMI President Purnell W. Choppin said of the new investigators, "These outstanding scientists are being invited to join one of the most creative and productive groups of researchers in the world. Their selection was the result of an intensely competitive process and is a tribute to their ability and promise as research scientists."

HHMI is a medical research organization that enters into long-term research collaboration agreements with universities and other academic research organizations, where its investigators hold faculty appointments. Under these agreements, HHMI investigators, who are employees of the institute, conduct their scientific research in institute laboratories located on the various campuses.

HHMI, the largest philanthropic organization in the US, has an endowment of approximately $9.6 billion, with a budget for the current fiscal year of $455 million. Biomedical research expenditures alone for the institute in FY 1997 will total about $338 million. Once the newly selected investigators are incorporated within HHMI's budget, expenditures are expected to rise by another $50 million a year.

HHMI investigators conduct biomedical research in five areas: cell biology, genetics, immunology, neuroscience, and structural biology, Recent years have seen HHMI investigators make significant discoveries related to obesity, AIDS, cancer, diabetes, hypertension, cardiac arrhythmias, cystic fibrosis, muscular dystrophy, and many other medical problems. Research papers by HHMI scientists are among those cited most often by other researchers, one measure of scientific impact.❖

Nadel Receives Medal from American Lung Association

APS member **Jay A. Nadel**, Professor of Medicine and Radiology at the University of California at San Francisco (UCSF), has been named this year's recipient of the prestigious Edward Livingston Trudeau Medal of the American Lung Association.

The medal is presented annually for major achievement in the prevention and treatment of lung disease. The medal honors Trudeau, a distinguished scientist and founder of the lung association.

Nadel joined the UCSF faculty in 1960 and for the past 20 years has served as Director of the Multidisciplinary Pulmonary Research Training Program at UCSF's Cardiovascular Research Institute. More than 2,000 pulmonary scientists from more than 20 countries have trained in the program, and many now hold leadership positions in medicine in their respective homelands.

At UCSF, Nadel's research has focused on the effects of air pollutants on lung biology, and work in his laboratory has contributed to the concept of asthma as an inflammatory disease. His research group discovered the water and salt transport system in the lungs that keeps the airways lubricated, an important contribution that has led to current understanding of the disease process of cystic fibrosis.

Currently, Nadel is concentrating his research efforts on interactions between cells in the lungs that secrete mucus. During a viral infection like a cold or after inhaling allergic particles such as pollen, certain cells — called goblet cells — often explode, creating excess mucus in the lung. He is exploring the ways these excess secretions can lead to death in asthma patients and to new treatment methods.

With John Murray, Emeritus Professor of Medicine at UCSF, Nadel recently coedited the second edition of the *Textbook of Respiratory Medicine*, a comprehensive work that blends scientific principles with the practice of respiratory medicine. He is also the author of more than 300 original scientific articles.

Nadel has received numerous awards and honors, including honorary doctorates in medicine from the University of Ferrara in Italy and from the University of Lund in Sweden. He received an honorary degree in law from Dickinson Law School in Philadelphia earlier this year. Nadel received his MD from Jefferson Medical College of Thomas Jefferson University in Philadelphia and completed internship and residency training at Philadelphia General Hospital. ❖

Levy Receives Prestigious Teacher-Scholar Award

APS member **Joseph V. Levy**, Professor and Chair of Physiology at the University of Pacific School of Dentistry in San Francisco, CA, has received one of his university's highest honors, the Eberhardt Teacher-Scholar Award for 1997.

This university-wide award is given by faculty and students in recognition of exemplary innovation in teaching and scholarship. Levy had been recognized previously by his students at the School of Dentistry with four Excellence in Teaching Awards.

Levy, who received his undergraduate and graduate education at Stanford University, the University of California at Los Angeles, and the University of Washington, respectively, has been affiliated with the University of Pacific since soon after the institution merged with the former College of Physicians and Surgeons in San Francisco. A recipient of numerous scholarships, fellowships, and awards — including an NIH Career Development Award and an advanced research fellowship from the American Heart Association — Levy is also affiliated with California Pacific Medical Center, one of San Francisco's largest private teaching hospitals. Levy has focused his research largely on the physiology and pharmacology of cardiac and vascular smooth muscle, with more than 120 scientific articles and publications to his credit. ❖

Goodrich Appointed Dean at Drexel University

Neuroscientist **Cecilie Goodrich**, a member of APS, was appointed recently to the position of dean of Drexel University's College of Arts and Sciences. She leaves the same position at Cleveland State University in Cleveland, OH, to fill the post.

In announcing Goodrich's appointment, Drexel University President Constantine Papadakis said, "Under her leadership, I expect the college will enjoy expanded teaching and learning opportunities." As dean at Cleveland State, Goodrich helped introduce an interactive distance learning system that is a state and national model. She is a member of the American Association for the Advancement of Science, Sigma Xi, and the American Society of Zoologists.❖

People and Places

Leticia Castillo has become affiliated with Children's Hospital, Boston, MA. Prior to her new position, Castillo was associated with the Massachusetts General Hospital, Boston, MA.

Eric Delpire has accepted a new position with the Department of Anesthesiology at Vanderbilt University School of Medicine, Nashville, TN. Prior to his new assignment, Delpire was an instructor with the Renal Division of Brigham & Women's Hospital, Boston, MA.

Having accepted the position of assistant professor with the Department of Exercise and Sport Sciences, Ithaca College, Ithaca, NY, **Steven Devor** is no longer at the Institute of Gerontology, University of Michigan, Ann Arbor, MI.

Yoshitaka Fujii had been affiliated with the Department of Anesthesiology and Critical Care at Tokyo Medical and Dental University School of Medicine, Tokyo, Japan. Recently, Fujii joined the Department of Anesthesiology, Institute of Clinical Medicine, Tsukuba City, Japan.

Formerly an assistant research fellow with the Department of Internal Medicine at the University of Iowa, Iowa City, IA, **Linda F. Hayward** is now currently with the Department of Physiological Science at the University of Florida College of Veterinary Medicine, Gainesville, FL.

Rosalia Sanchez Gonzales has moved to West Point, PA, in order to join with Merck Research Laboratories. Prior to accepting this new position, Gonzales was a postdoctoral research scientist with the Upjohn Company, Kalamazoo, MI.

Edward N. Guillery has accepted a position with the Department of Pediatric Nephrology, University of Michigan, Ann Arbor, MI. Previously, Guillery's position was assistant professor with the Department of Pediatrics, University of Wisconsin, Madison, WI.

Accepting a position with the Allegheny University Cardiovascular and Pulmonary Institute, Pittsburgh, PA, **Yoshihiro Ishikawa** has moved from the Department of Medicine, Brigham & Women's Hospital, Boston, MA.

Having accepted a position at the College of Health Professions, Central Michigan University, Mt. Pleasant, MI, **Stephen J. Kopp** has left the College of Allied Health, Midwestern University, Downers Grove, IL.

Mariana Morris has moved from the Department of Physiology and Pharmacology at the Bowman Gray School of Medicine, Winston-Salem, NC. Morris has joined the Department of Physiology and Toxicology, Wright State University School of Medicine, Dayton, OH.

Joining the Department of Respirology and Allergology, Fujita Health University, Toyoake-shi, Japan, as an assistant professor, **Mitsushi Okazawa** has moved from St. Paul's Hospital Pulmonary Research Laboratory, Vancouver, BC.

Adam J. Rich has left the Department of Dental Research at the University of Rochester Medical Center, Rochester, NY, and has affiliated with the Department of Physiology and Biophysics at the Mayo Clinic and Foundation, Rochester, MN.

After being the Director of the Diabetes Center at the University of Minnesota, Minneapolis, MN, **R. Paul Robertson** has moved to Seattle, WA, where he is currently the CEO/Scientific Director of the Pacific Northwest Research Foundation, Seattle, WA.

Moving from the Department of Anesthesiology and Critical Care Medicine at the Johns Hopkins Hospital in Baltimore, MD, **James L. Robotham** has become affiliated with the Department of Anaesthesia, Hammersmith Hospital, London, UK.

Joining the University of Nebraska Medical Center in Omaha, NE, as a professor of surgery, **Joseph C. Stothert** has moved from the Department of Surgery at Creighton University in Omaha, NE.

Joseph May Szewczak has joined the faculty of the University of California's White Mountain Research Station in Bishop, CA. Prior to his new position, Szewczak was affiliated with the faculty of Deep Springs College, Dyer, NV.

Having accepted a position with the Department of Human Physiology at the University of California at Davis School of Medicine, **Fernando F. Vargas** is no longer affiliated with the Department of Cardiorenal Drugs at the FDA Laboratory of Cell Biology and Genetics, Bethesda, MD.

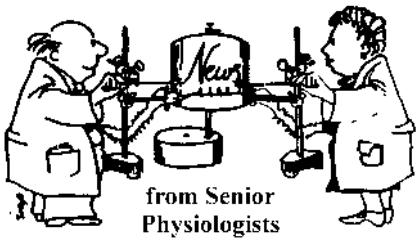
Recently, **Zhaowen Wang** joined the Department of Anatomy and Neurobiology at Washington University in St. Louis, MO. Formerly, Wang was connected with the Department of Animal Biology, University of Pennsylvania, Philadelphia, PA.

B. Stanley Willenbring has moved from the College of West Virginia School of Health Sciences in Beckley, WV, to the Pikeville College School of Osteopathic Medicine in Pikeville, KY.

Changing his affiliation from the Physiology Department, Oregon Health Sciences University, Portland, OR, **Ling Xu** has recently joined the Department of Neuroscience, University of Pittsburgh, Pittsburgh, PA.

Letter to Stephen M. Cain

Thomas F. Johnson writes: "Your greeting on my 80th birthday was most gratifying. Never before have I had such a wonderful 'shower of cards.' I retired in 1978 from Howard University after 32 years. Still traveling with our Airstream. Just returned March 29 from Perry, GA. Still able to drive!"



Letters to Richard L. Malvin

Leroy J. Hirsch writes: "I received your letter of April 25 going to all members born prior to 1917. If 1917 were my birth year, I would be, according to my grandson, in the 'geezer' category. However, since I was born in 1927, that puts me, again according to my grandson, in the 'codger' stage. The progression, if you do not know, is that at age 75 I will become an 'old codger.'

"So, if you are interested in a codger's activities, I am not yet retired and do not plan to be so for at least another one-and-a-half years. (I will still have not reached the old codger stage.) I continue doing my own thing, which is using a pig model in an attempt to establish markers in the production of myocardial, oxygen-derived free radicals during cardiac bypass procedures, i.e., coronary artery grafts or cardiac transplants.

"I am also hard at work trying to convince young anesthesia residents to explore the possibilities of becoming involved in laboratory research. Unfortunately, interest in basic science just does not seem to be there, either for the residents or young faculty. The action today in anesthesiology is in 'outcome' studies. This type of research does not take large sums of money and is relatively easy to do with pharmaceutical companies frequently underwriting much of the cost.

"You ask if I have any 'pearls' of wisdom to pass on to our younger colleagues. In the climate we have today, it is difficult for us codgers to give advice to our young folk. Academic tenure may be going by the wayside; postdoctoral fellows may become emeritus before they find full-time positions; medical schools are finding it difficult to stay in business; what were once academic hospitals now may become large (or maybe downsized) community hospitals as they compete for managed care dollars; research dollars may be shrinking (although we keep hoping for the best.) All I can say is for the young physiologists to follow their heart. It may be difficult, but if they love what they do (as I have lo these many years), somehow they will survive. If it becomes too tough, they may have to make some difficult life-choice decisions.

"From my vantage point, I am happy I am not a 30-year-old assistant professor, without tenure."

Edith D. Hendley writes: "Thank you very much for contacting me as a soon-to-be 70-year-old physiologist. I have enjoyed following the lives of senior colleagues over the many years of my APS membership, and now I find myself on the other side, happy to participate in this worthwhile endeavor.

"I became emerita in 1994 but have remained on active status, maintaining my office and my laboratory (albeit reduced in size) in the Department of Molecular Physiology and Biophysics here at the University of Vermont. My research continues to occupy most of my time, and as long as I continue to be productive and manage the funds for my research, I would like to keep at it.

"My research interests are as a neuroscientist, using inbred rat strains developed in my laboratory to study the neurochemical and genetic basis of two disorders that these rats express. One strain, WKHT, is a model of essential hypertension and is an improved version of the spontaneously-hypertensive rat (SHR) — improved in the sense that it does not have the hyperactivity or hyperreactivity to stress as does the widely used SHR strain. The other strain I developed, WKHA, expresses the behavioral abnormalities of the SHR; however, it is normotensive in blood pressure and, in that sense, is an improved version of the SHR as a model of hyperactivity.

"I am not sure I have much advice for my younger colleagues, as they face a much tougher academic world than my generation did. On the other hand, any young women out there who love scientific research and teaching should find it somewhat easier than my generation did. What has kept me focused has been the knowledge that this is really the only kind of work I want to do, an attitude that feeds on itself and keeps me striving even to the present, where thoughts of really retiring seem unthinkable."

Letter to Harold S. Weiss

Harry Y. C. Wong writes: "Although I was officially retired in June 1988, I was reappointed full-time until 1991. Since then, I have been reappointed part-time, without compensation, to continue my research. The Department of Physiology has provided me with an office, and the medical school provided a laboratory space. Since the medical school is close to NIH and the USDA Research Center in Beltsville, MD, I have been able to collaborate with scientists at these two research facilities all these years.

"My departmental duties include being Chairman of the Joseph Leland Johnson Award in Physiology and Biophysics from its inception in 1967 to the present and advising graduate students. Additionally, I have been busy as a referee of manuscripts for several journals, including those published by APS. I am fortunate that I am able to attend and present papers at several scientific meetings annually, as well as attend seminars at NIH and USDA.

"As for advice to others, work as

hard as you can with what scientific knowledge available to you. Have faith in yourself and good luck!"

Letter to Arthur J. Vander

Roy V. Talmadge writes: "It was a pleasant surprise to hear from you with your congratulations on my reaching my 80th birthday. The trouble is that it means I have been retired for 13 years, requiring considerable audacity to claim that I am still a research scientist. My wife Helena and I are now spending our winters in a lovely retirement center and our summers enjoying the beauty of the North Carolina mountains in Montreat, NC.

"My great associates back at the University of North Carolina at Chapel Hill, Phil Hirsch and Gayle Lester, have been very faithful in keeping me in touch with my old discipline of calcium metabolism and bone endocrinology. They have even succeeded in having me do a little armchair physiology by getting me to remind the discipline that the old problem as to how parathyroid hormone (PTH) works with bone to maintain proper extracellular fluid calcium concentrations has never been solved. I even wrote a foreword for a book on *Calcium and Phosphate in Health and Disease*, edited by Anderson and Garner, reviewing the age-old controversy as to the actions of PTH and calcitonin.

"Our discipline has slipped deeply into molecular problems and bypassed important physiological questions. My armchair research has struggled, not only with the action of PTH but, more basically, with the question as to how plasma calcium concentrations, in the absence of this hormone, are maintained at a level so much higher than the solubility of apatite crystals with which body fluids are constantly in contact. I sorely miss the interrupted work of the late Bill Neuman.

"As is true of many older scientists, I worry that our science discipline has delved so deeply into scientific minutiae that errors have crept in on much broader physiological principles. I keep thinking of that old adage by the 19th century philosopher Josh Billings, "I have lived long enough to look again at those things I was so sure of the first time around."

Letters to Robert M. Berne

John S. Cook writes: "[Wife] Dorothy and I retired at a good time. The Biology Division here, after its founding by Alexander Hollaender in 1946 and a reasonably distinguished 50-year run, came onto hard financial times. There were about 120 staff scientists at the end of the 1970s, and there are about 15 today. At the end of January, the division was formally dissolved and merged with another, also badly strapped. It is now the Life Sciences Division (LSD for short), and only the perceived value of 150,000 genetically-tagged mice and a small program in genetic engineering of plant proteins keeps it viable at all."

Tomuo Hoshiko writes: "I taught my last class a couple of weeks ago. The course is one I organized almost five years ago on "Responsible Conduct of Scientific Research." I got interested in ethical issues in science partly because of my astonishment that serious philosophers were challenging the use of animals for biomedical research. As a new Christian, I was interested in ethical issues generally, so I became interested in ethics in science and worked up this course.

"The problem is that graduate students are under so much pressure that they can hardly take time to work out their own personal problems, let alone think critically about misconduct in science. Now that this type of course is mandated by the Public Health Service, students regard all this as a form of time-serving. Actually, as you are well aware, the major problems students have in research have more to do with their relationships with their advisors or mentors."

Ian Darian-Smith writes: "Fortunately, both my wife and I are in good health and enjoy life. Both the University of Melbourne and the National Health and Medical Research Council of Australia have supported me generously since I formally retired. I have the laboratories that I used before retiring and use of the National Macaque Facility. A great joy is that my daughter Corinna has established herself as an independent neurobiologist and continues to work in the same laboratories. We have recently coauthored reviews on the neural basis of manual dexterity, a field that we have worked in for some years."

John C. McGriff writes: "At the American Society for Pharmacology and Experimental Therapeutics meeting this year in San Diego, I received the Otto Krayer Award and renewed old friendships. I dedicated my award speech to my dear friend and first chairman, George Koelle, who died February 1. Most of the junior staff in his department at the University of Pennsylvania at that time became chairmen. (Is this an achievement?)

"On renewal of my MERIT award, the Dean threw a reception, and Alberto Nasjletti was asked to speak. Tito said my epitaph would be, 'McGriff died funded.'

"The age of 70 does not scare me, and I intend to ignore all the warning signs and proceed full speed ahead off the cliff!

"It was good hearing from you, and I know you are aging well, too!"

Orville A. Smith writes: "Thanks so much for your letter requesting a few sentences on what is keeping me occupied as I approach that 70th birthday. I chose to hold off answering until today, the first formal day of my retirement! So here I am at work. I did not get in until 6:45 this morning, so I was a little late in turning on the telemetry gear on my three baboons, who have been churning out beautiful data for almost three months now.

"I just turned in the final year of a National Heart, Lung, and Blood Insti-

tute grant but will coast on unexpended carry-over funds for a while. I hope to add a group of baboons with paraventricular nucleus lesions to the perifornical and control lesion animals I already have. Jointly, they should present a nice picture on hypothalamic control of blood pressure.

"Next month, I embark on a trip to the Russian Primate Center, which has been moved from Sukhumi to Sochi because of the separation of Georgia from Russia, and from there via Istanbul to Jakarta and a visit to our Tinjil Island primate breeding facility off the southwest coast of Java. Then, home across the Pacific, completing a circumnavigation.

"So life goes on at a fairly rapid pace. There will be time for rest later. Thanks again for the note. Just last week, Larry Rowell was recounting the story of your visit when you were on the slopes at Alpenthal, and as you zoomed down the run, one of the postdoctoral fellows said, 'Well, there goes the adenosine hypothesis.' Larry says hello."

Letter to Martin Frank

Richard L. Malvin writes: "Although I sent out all the letters to my list of senior physiologists, no one has contacted me, although I am 70. So I am writing you. OK?

"As time for my retirement approached (age 65), I admit to having been a bit apprehensive. Would I be happy without a laboratory of my own? Would I survive retirement? The answer to both is, 'Yes.' Would time hang heavy on my hands? The answer is no. Fortunately, my school and department were good about appointing me active emeritus. I was given a large office in the department where I can read, write, see students, and do as I like.

"I now find that the problem is not what I will do with my time; rather, it is how I will fit all that I want to do in the time that I have. I teach a course to honors undergraduate students designed to show them how to be skeptics, i.e., how to respond to the myriad claims that bombard us each day. How should they test those claims? What questions should they ask of the claimant? It is appreciated and well attended.

"For the past few years, I collaborated in writing a physiology text for nonscience majors. It was a rewarding experience, especially since the coauthors are my son and an ex-student of mine. The book has recently been published, and the three of us are awaiting results. (All purchases appreciated.)

"I am active in a few mentor programs at our university and enjoy working with young college students in that role. Some of my time is spent in trying to further the goals of the Michigan Society for Medical Research. Our organization is designed to educate the public about animal use in research. Animal activists still pose a serious problem to biological research, and we scientists need to speak out. Our silence has allowed passage of much costly and restrictive legislation.

"I am delighted that 'retirement' allows me more time to spend with my lovely wife of 48 years, something I have missed during all those 48 years. Although we love Ann Arbor, we are not as thrilled with it during the winter months. When the skies darken, we take off for warmer climes where we play tennis as often as we wish and hike nice trails. However, the trails seem to get longer each year. We remember that we were able to reach a particular goal far sooner than we do now. Whenever the spirit moves us, we travel. A whole world is out there waiting for us.

"Age also usually brings grandchildren. Our two give us great joy. Of course, one can enjoy them without retirement, but retirement allows greater contact and the delight of watching them grow. In short, life is treating us well. I highly recommend emeritus status to all."❖

The Dynamic Organization of Cells

A symposium celebrating the late Frederic Fay's contributions to science will be held at the University of Massachusetts Medical School in Worcester, MA, on September 26, 1997. Participating speakers include:

- **Andrew Somylo**, Professor of Physiology, University of Virginia Medical School
- **Marc Kirschner**, Professor of Cell Biology, Harvard Medical School
- **James Spudich**, Professor of Biochemistry, Stanford University
- **Tim Mitchison**, Professor of Cell Biology, Harvard Medical School
- **John White**, Professor of Anatomy, University of Wisconsin
- **Roger Tsien**, Professor of Pharmacology, University of California at San Diego
- **D. Lansing Taylor**, Science and Technology Center, Carnegie Mellon University
- **John Sedat**, Professor of Biochemistry and Biophysics, University of California at San Francisco

All are welcome! For further information, please contact H. Maurice Goodman, University of Massachusetts Medical Center, Worcester, MA 01655. Tel: 508-856-2101; e-mail: Maurice.Goodman@banyan.ummed.edu.

Primer on the Autonomic Nervous System

David Robertson, Phillip A. Low, Ronald J. Polinsky (Editors)
San Diego, CA: Academic, 1996, 343 pp., illus., index, $39.95
ISBN: 0-12-589761-8

This is a unique and valuable book covering anatomy, physiology, pharmacology, and disorders of the autonomic nervous system. It is, as the editors state, a "primer," and it meets their goal "to present the canon of autonomic neuroscience to students, scientists, and physicians in a concise and accessible manner." The book is divided into 13 parts that contain 68 chapters, written by a total of 83 authors who are recognized authorities in their areas. Despite its many chapters and authors, the book is tightly structured so that its succinct chapters, which average approximately five or six pages in length, yield a mostly cohesive survey of a complex topic.

Parts I – III provide much of the basic science backbone of the book. In their treatment of anatomy, the three chapters in Part I clearly describe important central and peripheral structures and relate their anatomic location and neurotransmitters to function. Concise discussions of structural organization of the sympathetic nervous system and the concept of plurichemical transmission and chemical coding are also excellent.

The 11 chapters of Part II, Physiology, cover visual, sexual, gastrointestinal, metabolic, cardiac, and vascular functions of the autonomic nervous system. One chapter deals efficiently with effects of aging on autonomic function. Overall, the coverage is current and efficient.

Four chapters in Part III, Pharmacology, provide succinct, up-to-date surveys of dopaminergic, noradrenergic, purinergic, and amino acid neurotransmitters and cotransmitters. The chapters cover locations of various systems; their loci of action; and the synthesis, storage, release, and functions of their neurotransmitters. A section on imidazoline receptors, of unknown function, seems premature. Also, discussion of neuropeptide Y was sparse in Chapter 16, covering noradrenergic neurotransmission.

Part IV contains two chapters on clinical assessment of autonomic failure that provide helpful background for the subsequent chapters on autonomic disorders. The tables in Chapter 20 are especially useful, but the discussion of heart rate responses to orthostasis was potentially misleading. Because of the near collapse of thoracic veins in upright posture (owing to near-zero central venous pressure), raising heart rate will not raise cardiac output significantly; blood pressure is maintained by vasoconstriction. The biochemical assessment of sympathetic activity in Chapter 21 was also a valuable contribution.

Part V covers environmental and physical stresses, which impose the greatest demands on the human autonomic system. Three of the five chapters in Part V discuss three conditions — exercise, hyperthermia and hypothermia — in which autonomic control of circulation permits adjustments to the stress. Chapter 22 highlights the central importance of the arterial baroreflex in autonomic control during exercise. Chapters 23 and 24 treat the clinical sequelae of hyper- and hypothermia but not critical autonomic adjustments to minimize these crises. This is unfortunate because hyperthermia (called a "hyperadrenergic state") elicits during exercise the greatest increases in sympathetic activity seen in humans, except possibly severe hemorrhage. The deleterious consequences of extreme regional vasoconstriction are well recognized. Discussions of malignant hyperthermia are rarely found and offer here a unique contribution in their succinct treatment of causes and management of these chemically induced dysfunctions.

Beginning with Part VII, Cardiovascular and Cerebrovascular Disorders, the remainder of the book deals entirely with clinical disorders (Chapters 27–68). Part VI discusses the roles autonomic function might play in disorders such as primary hypertension (Chapter 27), cardiac arhythymias and sudden death (Chapter 28), transient myocardial ischemia and infarction (Chapter 30), and congestive heart failure (Chapter 31).

Chapter 27 examines various indices of sympathetic nervous activity to assess its contribution to hypertension. A cautious wariness of power spectrum analysis is included with possibly risky comparisons of microneurographically recorded sympathetic nerve activity in different individuals and groups. Apparent conflicts can be constructive — as for example in Chapters 28 and 30, which seem to view parasympathetic tone as mainly protective. Chapter 29 (cerebral autonomic regulation underlying cardiovascular disease) does not. The section on heart rate variability introduced new methods and unfamiliar terms that disturbed the flow. In general, this section laid out very well some diverse consequences of altered autonomic nervous activity. An especially good example for students and basic scientists was that of congestive heart failure in Chapter 31.

Part VII on "paroxymal" [sic] autonomic syncopes is relevant to all readers because its three chapters (32–34) consolidate understanding of acute events leading to sudden reversal of normal sympathetic vascular and parasympathetic cardiac control attending syncope. Chapters 32 and 33 follow nicely from the treatment of the Bezold-Jansich Reflex in Chapter 12. Chapter 34 discusses a probable cause of frequent syncope in endurance athletes. In as much as orthostatic intolerance is a sequela common to most autonomic disorders discussed subsequently, Part VII provides a good foundation.

Up to Part VIII, the book flows well, starting with basics and leading up to important integrative functions of autonomic control and then to adverse affects or altered control on systemic functions. An important lesson is that scientists can often learn as much from "nature's experiments" as from their own. Beginning with Part VIII, emphasis shifts toward the physicians' needs for succinct treatments of specific disorders. These are categorized under catecholamine disorders, central and peripheral autonomic disorders, and orthostatic intolerance syndrome. An efficient itemized summary of disorders represents a unique format for this material and one that clinicians and clinical investigators seem to welcome. Benefits to basic scientists and students will come from these chapters revealing little known (to the scientists) aspects of autonomic function and dysfunction and the multiple disturbances of control among systems caused by dysautonomias. Those not familiar with the subtle distinctions among specific autonomic disorders will nevertheless be impressed with the commonality of their effects. A mainstream of common sequelae provides some cohesiveness despite the discrete organization of many of these clinical chapters around a single disease or disorder.

Some chapters are more oriented toward explaining how the disorders alter autonomic functions, whereas others present brief background, symptoms, diagnostic clues, and treatment. Others simply define the disorder and add little more (presumably because not much more is known). There are some difficulties for the reader. For example, some

chapters are dense with descriptive material. Some contain specialized and undefined terminology, and in some chapters excessive use of acronyms (not always defined) can be disruptive, giving this excellent "primer" a manual-like quality not evident in other sections.

In Part V, this nonclinical reviewer found discussions of pheochromocytoma and neuroblastoma, chemodectoma and familial paraganglioma syndrome, baroreflex failure, and dopamine-β -hydroxylase deficiency to be instructive and valuable.

In Part IX, Central Autonomic Disorders, the four chapters (43–46) covering Parkinson's Disease, Shy-Drager Syndrome, central nervous disorders, and autonomic disturbances in spinal cord injuries were also well done and informative. Basic scientists who instruct medical and graduate students will find excellent teaching tools in these chapters, as well as elsewhere in the book.

In Part X, the nine chapters on peripheral autonomic disorders provide dense and difficult reading because of this unique collection of so many functional disorders being described under one cover. It should provide valuable reference material for clinicians.

Part XI revisits orthostatic intolerance syndromes, the most common and often most incapacitating consequence of autonomic dysfunction. The peculiarities of the postural tachycardiac syndrome (Chapter 56) make interesting reading — as do mitral valve prolapse (Chapter 57) and idiopathic hypovolemia. Here, and occasionally elsewhere in the book, are brief statements that have the venous system actively increasing "venous return" in ways that most cardiovascular physiologists would contest.

Part XII, Other Clinical Conditions, contained far more than leftovers with its valuable discussions of disorders of sweating (Chapter 59), impotence (Chapter 60), sleep apnea (Chapter 61), and also surgical sympathectomy, which has such important bearing on some classical human studies in physiology and medicine.

The final section deals with clinical management of autonomic disorders and contains an especially interesting chapter (65) on physical countermeasures to diminish orthostatic hypertension.

In summary, this "primer" on the autonomic nervous system accomplishes of what it was created to do. There is no other source that provides such inclusive coverage of the anatomy, physiology, and pharmacology of autonomic dysfunction, as well as its physiological and clinical aspects. This book will serve its intended readership well, and it is a uniquely valuable resource for teaching both medical and graduate students.❖

Loring B. Rowell
University of Washington

Amyotrophic Lateral Sclerosis: Diagnosis and Management for the Clinician

Jerry M. Belsh and Philip L. Schiffman (Editors)
Armonk, NY: Futura, 1996, 390 pp., illus., index, $90.00
ISBN: 0-87993-628-2

In the last 12 months, I have had the opportunity to review three textbooks on amyotrophic lateral sclerosis (ALS) and a number of manuscripts submitted on the clinical management of the illness. For an illness that has been present for more than 100 years, there has been a tremendous flurry of activity in the press regarding its management, diagnosis, biology, and therapeutics. One has to wonder after a period of time whether novel contributions are being made by each of these manuscripts.

This textbook edited by Belsh and Schiffman, much to my pleasure, fills a niche in the ALS literature. At the onset, in their preface, the authors state they have "attempted to provide a readable text which conveys useful and pertinent information." I think they have succeeded admirably in doing so and indeed provided a number of chapters that are unique and very enjoyable to read.

The textbook is divided into a number of traditional chapters, including description of the epidemiology and historical perspectives through to clinical presentations, a discussion on the adult onset of spinal muscular atrophies, and electrophysiology. There is an excellent chapter on ALS-like syndromes and ALS variants that provides a succinct description for those wishing an overview of this area. The electrodiagnosis by Wilbourn is succinctly written and in sufficient detail that will be useful to the general practitioner. I was initially surprised to find a chapter entitled "Notable People with ALS" but indeed found this one of the most enjoyable chapters to read.

Noteworthy in the book is the chapter on the overall management of the ALS patient. Surprisingly, in this day and age, there is still considerable debate on whether the patient should be told the diagnosis of ALS early or late, and I think this is well dealt with in the chapter. I would only add that it is occasionally appropriate to delay providing the diagnosis as one proceeds through the work up with the patient made aware that ALS is a tenable diagnosis in the differential. I have found this often provides an opportunity for the patients to come to grip with the possibility of the diagnosis, and indeed, on the follow-up visit, it can be dealt with in a more expeditious fashion. I was pleased to see a chapter on the neurobehavioral aspects of ALS and a succinct section discussing the occurrence of frontal temporal dementia in the disease process.

My only concern in the text arose in Chapter 3 and encompasses the description of primary lateral sclerosis. Primary lateral sclerosis is not necessarily a subtype of ALS. A single statement to this effect would be required, particularly with regard to the importance prognostically. It is ultimately discussed in an otherwise excellent and well-written chapter.

As such, I can highly recommend this textbook, which I found a pleasure to read. It is directed toward the primary care physician or internist who may not necessarily deal with ALS frequently, and, as such, the textbook meets its goal.❖

Michael J. Strong
London (Ontario) Health Sciences Centre

Books Received

Cystic Fibrosis Current Topics, Vol. 3.
J. A. Dodge, D. J. H. Brock, and J. H. Widdicombe (Editors).
Somerset, NJ: Wiley, 1997, 369 pp., illus., index, $99.95.
ISBN: 0-471-96353-4.

The Endothelium in Clinical Practice: Source and Target of Novel Therapies.
Gabor M. Rubanyi and Victor J. Dzau (Editors).
Fundamental and Clinical Cardiology, Vol. 29. Samuel Z. Goldhaber (Series Editor).
Monticello, NY: Dekker, 1997, 568 pp., illus., index, $195.00.
ISBN: 0-8247-9809-0.

Frontiers in Arterial Chemoreception.
Patricio Zapata, Carlos Eyzaguirre, and Robert W. Torrance (Editors).
Advances in Experimental Medicine and Biology, Vol. 410.
New York: Plenum, 1996, 480 pp., illus., index, $125.00.
ISBN: 0-306-45490-4.

Gastrointestinal Physiology. Fifth Edition.
Leonard R. Johnson.
St. Louis, MO: Mosby-Year Book, 1997, 190 pp., illus., index, $29.95.
ISBN: 0-8151-4934-4.

Molecular Biology of Cardiovascular Disease.
Andrew R. Marks and Mark B. Taubman (Editors).
Fundamental and Clinical Cardiology, Vol. 30. Samuel Z. Goldhaber (Series Editor).
Monticello, NY: Dekker., 1997, 552 pp., illus., index, $195.00.
ISBN: 0-8247-9405-2.

Muscle Damage.
Stanley Salmons (Editor).
New York: Oxford University Press, 1997, 243 pp., illus., index, $65.00.
ISBN: 0-19-262753-8.

Optimizing Sport Performance.
David R. Lamb and Robert Murray (Editors).
Perspectives in Exercise Science and Sports Medicine, Vol 10.
Carmel, IN: Cooper, 1997, 365 pp., illus., index, $45.00.
ISBN: 1-88412563-8.

Oxidative Stress and Signal Transduction.
Henry Jay Forman and Enrique Cadenas (Editors).
New York: Chapman & Hall, 1997, 475 pp., illus., index, $84.95.
ISBN: 0-412-07681-0.

Parasitic Lung Diseases.
Adel A. F. Mahmoud (Editor).
Lung Biology in Health and Disease. Claude Lenfant (Exec. Editor).
Monticello, NY: Dekker, 1997, 272 pp., illus., index, $135.00.
ISBN: 0-8247-9722-1

Peripheral Arterial Chemoreceptors and Respiratory-Cardiovascular Integration.
M. de burgh Daly.
New York: Oxford University Press, 1997, 739 pp., illus., index, $225.00.
ISBN: 0-19-857675-7.

Physical Activity, Training and the Immune Response.
Roy J. Shephard.
Carmel, IN: Cooper, 1997, 350 pp., illus., index, $75.00.
ISBN: 1-884125-65-4.

The Physiology and Pathophysiology of Exercise Tolerance.
Jurgen M. Steinacker and Susan A. Ward (Editors).
New York: Plenum, 1997, 333 pp., illus., index, $95.00.
ISBN: 0-306-45492-0.

Poikilothermia in Man: Pathophysiological Aspects and Clinical Implications.
M.A. MacKenzie.
Nijmegen, Netherlands: Nijmegen University Press, 1996, 192 pp., illus., $39.00.
ISBN: 90-5710-010-X.

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Scientific Meetings and Congresses

1997

September 4-6, 1997

Mechanisms of Secretion: the 51st Annual Meeting and Symposium of the Society of General Physiologists, Woods Hole, MA. *Information:* Society of General Physiologists, P. O. Box 257, Woods Hole, MA 02543-0257. Tel: 508-540-6719; fax: 508-540-0155; e-mail: sgp@mbl.edu.

September 7-10

CAAT-11VTG Symposium on Mechanisms of Toxicity, Baltimore, MD. *Information:* Program Coordinator, Johns Hopkins Medical Institutions, Office of Continuing Medical Education, Turner Building, 720 Rutland Avenue, Baltimore, MD 21205-2195. Tel: 410-955-2959; fax: 410-955-0807; e-mail: cmenet@som.adm.jhu.edu.

September 7-10

10th Annual Congress of the European Society of Intensive Care Medicine, Paris, France. *Information:* Suzanne Smitz-De Smet, European Society of Intensive Care Medicine, Congress Secretariat, 40 Avenue Joseph Wybran, B-1070 Brussels. Tel: +32-2-529-58-29; fax: +32-2-527-00-62; e-mail: esicm@pophost.eunet.be.

September 7-10

5th World Congress of the International Society for Adaptive Medicine, Framingham, MA. *Information*: Sonya L. Herrin, Science and Technology Corporation, 101 Research Drive, Hampton, VA 23666. Tel: 757-865-7604; fax: 757-865-8721; e-mail: herrin@stcnet.com; Internet: **http://www.stcnet.com/meetings/isam97.html**.

September 7-11

International Congress on Chronobiology, Paris, France. *Information*: Yvan Touitou, Service de Biochimie Medicale, 91 boulevard de l-Hopital, 75634 Paris Cedex 13 France. Tel: 33-01-40-77-96-63; fax:33-01-40-77-96-65; e-mail: touitou@ccr.jussieu.fr.

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.

September 15-16

Nutrient and Energy Metabolism in the Elderly: Basic Mechanisms to Integrative Physiology, Burlington, Vermont. *Information:* University of Vermont, Division of Continuing Education, 30 South Park Drive, Colchester, VT 05446-2501. Tel: 800-639-3188 or 802-656-2088; e-mail: mbaggs@zoo.uvm.edu.

September 17-20

AAEM 44th Annual Scientific Meeting and 20th Annual Electrodiagnostic Medicine Continuing Education Courses and Workshops, San Diego, CA. *Information*: AAEM, 21 Second Street SW, Suite 103, Rochester, MN 55902. Tel: 507-288-0100; fax: 507-288-1225; e-mail: aaem@aol.com.

September 19-21

7th Conference on Modeling and Control of Ventilation, Huntsville, Ontario, Canada. *Information:* Betty Bax, Department of Kinesiology, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada. Fax: 519-746-6776; e-mail: bax@healthy.uwaterloo.ca; Internet: **http://www.ahs.uwaterloo.ca/cmcv**.

September 21-24

2nd International Congress of the African Association of Physiological Sciences and 25th Annual Congress of the Physiological Society of Southern Africa, Durban, South Africa. *Information:* The Congress Secretariat, P. Gathiram, Dept. of Human Physiology and Physiological Chemistry, University of Durban-Westville, Private Bag X54001, Durban 4000, South Africa. Tel: +27-31-2044312; fax: +27-31-2044132; e-mail: gathiram@pixie.udw.ac.za.

September 24-27

Renal Biopsy in Medical Diseases of the Kidney, New York. *Information:* Center for Continuing Education, College of Physicians & Surgeons of Columbia University, 630 West 168th Street, Unit 39, New York, NY 10032. Tel: 212-781-5990; fax: 212-781-6047; e-mail: cme@columbia.edu; Internet: **http://cpmcnet.columbia.edu/dept/cme/**

September 25-28

International Sport Nutrition Conference, Williamsburg, VA. *Information*: Linda Bump, Human Kinetics, 1607 North Market Street, PO Box 5076, Champaign, IL 61825-5076. Tel: 800-747-5547 (extension 2239); fax: 217-351-2674; e-mail: lindab@hkusa. com.

October 2-5

Biomedical Engineering Society 1997 Annual Fall Meeting, San Diego, CA. *Information:* Department of Bioengineering, University of California at San Diego, 9500 Gilman Dr., La Jolla, CA 92093-0412. Tel: 619-822-1997; fax: 619-534-5722; e-mail: bmes97@ucsd. edu; Internet: **http://bmes97.ucsd.edu**.

October 4-6

Pharmacology and Toxicology of Nitric Oxide and 18th Annual Meeting of the Southeastern Pharmacology Society, Augusta, Georgia. *Information:* Department of Pharmacology and Toxicology, Medical College of Georgia, Augusta, GA 30912. Tel: 706-721-2345; fax: 706-721-2347.

October 13-16

9th International Conference on Occupational Respiratory Diseases, Kyoto, Japan. *Information:* 9th ICORD Secretariat, c/o Japan Industrial Safety and Health Association, 5-35-1, Shiba, Minato-ku, Tokyo 108, Japan. Tel: +81-3-3452-6841 extension 525 or 526; fax: +81-3-3453-8034.

October 20-23

Morphogenesis: Cellular Interactions. A New York Academy of Sciences Conference, Bethesda, MD. *Information:* Science and Technology Meetings, New York Academy of Sciences, 2 East 63rd Street, New York, NY 10021. Tel: 212-838-0230, ext. 324; fax: 212-838-5640; e-mail: conference@nyas.org; Internet: **http://www.nyas.org.**

October 22-25

Fourth World Congress on Sport Sciences, Monte Carlo, Monaco. *Information:* SPORTEL Organisation, Fourth IOC World Congress on Sport Sciences, 4, Bd du Jardin Exotique, MC 98000 Monaco. Tel: +377-93 30 41 59; fax: +377-93 30 41 62.

October 25-28

Sixth International Conference on Fetal and Neonatal Physiological Measurement, Memphis, TN. *Information:* University of Tennessee at Memphis, Office of Continuing Medical Education, 956 Court Avenue, Room A101, Memhis, TN 38103. Fax: 901-448-6182.

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