THE PHYSIOLOGIST

A Publication of the American Physiological Society Volume 36, Number 4 August 1993

Scientific Illiteracy: Impact on Research and What Can Be Done

Over the last 10 years, animal rights groups have become a significant political force. More recently, their lobbying and so-called "educational" efforts have had a negative impact on medical research and science education. To combat the negative attitudes engendered by this animal rights campaign, scientists must assume the role of educator and conduct proactive programs about science using every possible avenue of public information.

Researchers are in a unique position to generate excitement about science. In addition, whatever they do to spark public interest in and appreciation for science can also have other desirable consequences, such as broadening public support for continued research funding, as well as encouraging young people to pursue careers in science. To explore the problem and some ways to address it, the APS Animal Care and Experimentation Committee and the ASPET Committee on Care and Use of Research Animals jointly sponsored a workshop on "Scientific Illiteracy: Impact on Research and What Can Be Done" at Experimental Biology '93 in New Orleans.

Inside . . .

Linda Pifer outlined the problem of scientific illiteracy. Pifer, who is Associate Director of the International Center for the Advancement of Scientific Literacy at the Chicago Academy of Sciences, presented the results of a six-year longitudinal study of adolescent attitudes toward animal research. The remaining speakers, Donald Frazier, Lloyd Michael, and Roger Maickel, who are all active members of the American Physiological Society, shared their experiences with programs to increase communication between scientists and youths.

In her remarks, Pifer defined scientific literacy as understanding the scientific process and how science benefits society. Pifer noted that social scientists differentiate between opinions, which are particular pragmatic judgments that may be based on relatively scant evidence, as opposed to attitudes, which are organized, deeply held feelings that remain consistent over several years. The longitudinal study was designed to examine adolescent attitudes and competence in several subjects, including science and technology.

Two groups of students were selected for the longitudinal study in 1987 when the younger group was in the 7th grade and the older group was in the 10th grade. Each time these students were surveyed, they were asked to indicate the strength of their agreement or disagreement with a number of statements, including the following one that was designed to bring to the forefront their attitudes on the most difficult issues relating to animal research: "Scientists should be allowed to do research that causes pain and injury to animals like dogs and chimpanzees if it produces new information about human health problems."

Of the 1,348 students asked this question in the 1992 survey, only 5% strongly agreed with this statement, while 15% strongly disagreed. Attempts were made to correlate attitudes to various parameters, such as the educational level of

(continued on p. 83)

CONTENTS

The Physiologist
Published bimonthly and distributed by
The American Physiological Society
9650 Rockville Pike
Bethesda, Maryland 20814-3991
ISSN 0031-9376

Subscriptions: Distributed to members as part of their membership. Nonmembers in the USA: individuals $25.00; institutions $37.00. Nonmembers elsewhere: individuals $35.00; institutions $48.00. Single copies and back issues when available, $10.00 each; single copies and back issues of Abstracts issue when available, $20.00. In 1993, subscribers to *The Physiologist* will receive it and the abstracts of the Fall Conferences of the American Physiological Society. The American Physiological Society assumes no responsibility for the statements and opinions advanced by contributors to *The Physiologist.*

Deadline for submission of material for publication: Dec. 15, February issue; Feb. 15, April issue; April 15, June issue; June 15, August issue; Aug. 15, October issue; Oct. 15, December issue. **If you change your address or telephone number, please notify the central office as soon as possible.** Printed in the USA.

Headquarters phone: 301-530-7118. Fax: 301-571-8305.

SCIENTIFIC ILLITERACY
(continued from p. 81)

the students' parents, their scores on science achievement tests, etc. The clearest correlation appeared to be that between gender and attitude toward animal research: while boys were almost evenly divided, girls were much more likely to oppose than to support animal research.

Linda Pifer

Another important factor appeared to be the number of laboratory courses to which the students were exposed. Fifty-three percent of students who voiced strong support for the use of animal research had had three or more formal laboratory experiences in their science curriculum.

Between the extremes of strong supporters and opponents of the statement, a notable 49% of the students surveyed either had no opinion, were not sure, or did not know. According to Pifer, this is typical of a significant portion of both American youth and our society in general, who lack sufficient information to form attitudes about these issues. Positive information about science should be directed toward this group, she suggested.

Outreach programs from universities are an important means to provide both factual material and better visibility for career opportunities in science. Donald Frazier, University of Kentucky at Lexington, said that his state-supported university welcomed the "1-800-SCIENCE" hotline program that increased the visibility of the college within the state. In developing the information base for the science hotline, Frazier tapped university resources from the administration to graduate students. The Chancellor of the University of Kentucky Medical Center and the Dean of the College of Medicine helped fund the program. The high school science teachers' association welcomed the interactions and helped promote this service. Advertisements of the hotline on television, in the newspaper, and on the radio elicited more than 800 phone calls between 1990 and spring 1993. The largest number of questions were related to suggestions for science fair projects, which provided an excellent opportunity for scientists to help students think inquisitively and creatively about the world around them.

Donald Frazier

Lloyd Michael emphasized the importance of reaching students in all elementary and secondary school grades. Literature from animal rights groups such as PETA is already in their classrooms, but the scientific community must do more than simply react. Scientists must also become proactive by providing creative curriculum materials that combine basic science concepts from chemistry, physics, math, and biology in an interrelated fashion. Michael discussed programs developed by Baylor College of Medicine in Houston. One program developed in conjunction with the Houston Independent School District and the National Science Teachers Association involves hands-on laboratory experiences for students in grades 7–12. Another program, BrainLink, targets children in grades 1–6 with activities, workbooks, and stories centered in neuroscience. Michael stressed that early experiences in science laboratories are pivotal in challenging students to be "turned-on" by science. Although few of today's students will become scientists, all need to be scientifically literate to raise the level of their participation in the debate over social issues linked to science.

Lloyd Michael

One already established program that teaches positive concepts about animal care is 4-H. Roger Maickel reminded the audience that 4-H is an extension of the Land Grant University concept and therefore follows USDA guidelines strictly. Through their participation in 4-H programs, young people learn how to care for animals in every respect, from providing adequate bedding, food, ventilation, and basic care, to evaluating health problems and veterinary needs. These programs also include dissemination of information regarding business and management. Maickel emphasized that 4-H programs reach about 5 million students nationwide, about 11% of whom are in urban areas.

Roger Maickel

Encouraging positive attitudes about science in young people will not be an easy job, and while many programs are in place, many more are needed. Reaching elementary and secondary students is imperative for the scientific future of the nation and the well-being of society. It is vitally important for scientists to become involved in their local communities now.

Nominations for Honorary Membership

Members are invited to submit nominations for honorary membership. Send nominations and documentation of the candidate's contributions to physiology to APS Honorary Membership Committee, 9650 Rockville Pike, Bethesda, MD 20814.

A Matter of Opinion

A Lasting Legacy?

June 30 marked the end of Bernadine Healy's tenure as Director of the National Institutes of Health. It was a tenure marked with controversy starting with the Bush Administration's use of an abortion litmus test to select an NIH director. Controversy also accompanied her handling of the continuing ban on fetal tissue transplantation research and her interactions with Congress. She also raised the ire of the scientific community when she told them that NIH was not spelled "RO1." However, on balance, she can be seen as an articulate and combative spokeperson for science and biomedical research.

Healy's mark on NIH and the research community, however, will not end with her departure. During the last 18 months, she challenged the scientific community to view NIH differently. NIH "is not your father's Oldsmobile" was a theme she offered up many times. She told the scientific community they can no longer view NIH as that big comfortable car that provided them with the ultimate in security.

The new NIH needs to become a leaner, more streamlined model that can respond more rapidly to changes in the road, taking advantage of opportunities as they present themselves. Healy's point was that the new NIH cannot be fueled solely by "RO1s." It must also run on alternative fuels—i.e., new initiatives.

To meet the challenges of reduced budgets, a more demanding public, and uncertain Congressional support, it became imperative that NIH develop a strategic plan. This was not done casually. Developed by NIH officials, the plan was presented to the scientific community during a series of meetings that hopped across the country. Many were critical of that process because NIH appeared to be using it to legitimize the plan. However, it also provided the scientific community with an opportunity to comment. As a result, there were some changes and modifications made to the document. Indeed, the plan released in May 1993 has evolved considerably over the 18 months since its chaotic unveiling in San Antonio. It is a plan that has responded to some of the concerns raised by the scientific community during the meetings, although it by no means fulfills all their concerns.

Investment for Humanity provides a strategic vision for the National Institutes of Health. It can serve as a call to arms, to rally the American public to the importance of biomedical research in generating new knowledge for the benefit of humanity. It is a document that demonstrates that NIH is not the problem behind increasing health care costs but is part of the solution. From that perspective, the document is excellent because it provides the public and Congress with insights that can make them join in as advocates for NIH and biomedical research.

The growing budgetary and medical challenges facing NIH and the research community made it imperative that NIH develop a strategic plan. According to Healy, "Investment for Humanity is predicated upon the need to create an environment that promotes creativity on the part of individual scientists." The plan recognizes the importance of "a commitment to basic and clinical research as the means of expanding our knowledge base," to accomplish the mission of NIH that is summarized as science in pursuit of knowledge to improve human health.

Investment for Humanity is not a perfect document, a fact that Healy was willing to admit during a May 25 meeting with representatives of scientific societies including the APS. It is a document that is not etched in stone but will be refined further during the next 18 months. However, it is a plan that has been used in the development of the fiscal year 1993 and 1994 budgets. The plan includes sections on critical science and technology, research capacity, and an emphasis on investigator-initiated research.

The plan is also an invitation to the Congress to hamstring the NIH further through earmarks. The 100-page volume lays out a number of new initiatives and programs that raise the spectre of an escalating shift toward directed research and budget set-asides. In an environment of limited funding, where will the dollars be found for the major initiatives on the Human Cell, Human Brain, Bionutrition, Women's Health, Minority Health, etc.?

Members of the American Physiological Society and all basic scientists should be pleased to know that Healy finds the most important objective put forth in the document to be the one concerning "critical science and technology." That objective focuses on science, not particular health or disease-related areas. This section of Investment for Humanity reaffirms NIH's commitment to basic biomedical research. It celebrates investigator-initiated research and highlights NIH's need for what only basic science can provide.

This chapter of the strategic plan attempts to assure that critical science and technology in basic biology, which impacts on human health and the national economy, are advanced as priorities across the Nation's biomedical research enterprise. The areas of emphasis include 1) molecular medicine, 2) biotechnology and bioengineering, 3) immunology and vaccines, 4) structural biology, and 5) cellular and integrative biology.

The NIH Strategic Plan is not about incremental dollars. It is a plan that will exist whether the NIH budget is $5 or $50 billion. However, Healy believes that ideally, the NIH budget should be approximately $15 billion. It is a plan that will guide the growth of the budget, allowing for differential

(continued on p. 88)

NIH Reauthorization Becomes Law

President Clinton signed the NIH reauthorization bill at a White House ceremony June 10. The measure contains more than 20 titles directing NIH to undertake research and conduct studies on various diseases and conditions including AIDS, breast and ovarian cancer, osteoporosis and bone disorders, contraception and infertility, and prostate cancer. The law also provides legislative authority for various activities, such as the National Center for Human Genome Research, the Office of Minority Health, and the Office of Research on Women's Health.

The bill permanently lifts the ban on federally funded fetal tissue transplantation research and authorizes NIH to conduct such research, creates an Office of AIDS Research whose director will disburse all AIDS-related funding to the institutes, and requires NIH to convene an Interagency Coordinating Committee on the Use of Animals in Research. That panel, to be comprised of the institute directors and representatives of the EPA, FDA, NSF, and the Consumer Product Safety Commission, is to prepare for Congress a plan for the use of animals in research by October 1. The plan will outline how NIH will conduct or support research into methods of biomedical research and experimentation that do not require the use of animals and into methods that reduce the number of animals used, methods that produce less pain and distress, and methods that involve the use of marine life other than marine mammals. NIH is also required to establish the validity and reliability of such methods, to encourage the acceptance of validated methods, and to train scientists in their use.

The measure also requires HHS to issue new regulations within 180 days that will establish a uniform definition of financial conflict of interest and establish standards to guide research institutions in "responding to, including managing, reducing, or eliminating, the existence of such a financial interest."

House Approves Appropriations Bills for NIH and Other Agencies

The House of Representatives on June 30 approved a Labor-HHS-Education appropriations bill (H.R. 2518) that provides $10.937 billion for NIH in FY 1994. That sum is $269 million above President Clinton's budget request and represents a $610 million increase or 5.9% over NIH's FY 1993 appropriation. The House provided each NIH institute and center with at least a 5.2% increase to cover inflation and to provide it with 1% in new funds to address high-priority areas.

In report language accompanying the bill, the Appropriations Committee stated that "it believes strongly that the specific allocation of funds among disease and among research programs should be determined by the scientists and science managers at NIH based upon the scientific opportunities available." The panel said that it supported this approach because the decisions "are based on a fair system of peer review administered by NIH in consultation with its established system of advisory councils." The Committee report also urged NIH to use the added resources to fund "a significant increase" in the number of new and competing grants.

On June 29, the House approved the VA-HUD-Independent Agencies appropriations bill (H.R. 2419) that provides funding for VA Medical Research and the National Science Foundation. The bill provides $252 million for VA medical and prosthetic research, an 8.6% increase over its FY 1993 funding level. President Clinton had recommended only $206 million, or $26 million below the FY 1993 level. The VA-HUD-IA Appropriations Subcommittee restored that cut, and the full Appropriations Committee added another $20 million.

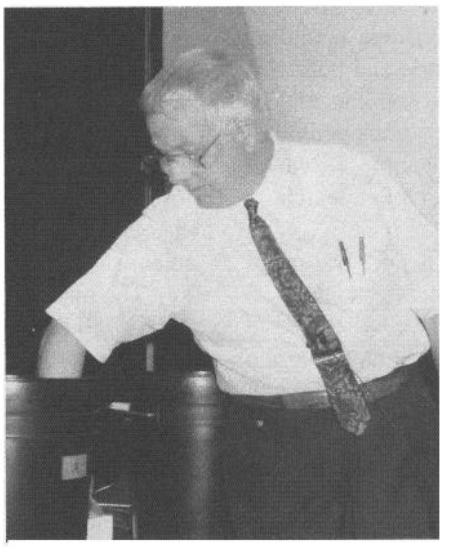
H.R. 2491 provides the NSF with a 10% increase over FY 1993 for research and related activities and an 11% increase overall. President Clinton had recommended an 18% increase for research and a 16% increase for the agency as a whole.

With House action complete, the bills were to go next to the Senate Appropriations Committee. The Labor-HHS bill might face problems down the road because the House approved language forbidding Medicaid funding for most abortions.

PUBLIC AFFAIRS continues on p. 145.

A New View of Physiology for Teachers and Students

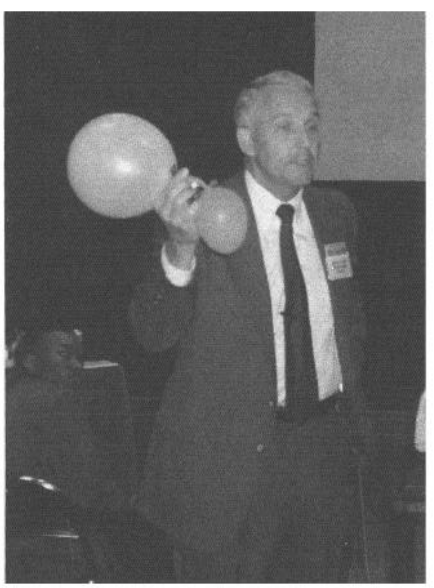
The Past President's Symposium at Experimental Biology '93 in New Orleans had a different look from those of previous years. As a part of his ongoing efforts to enhance physiology and life sciences education at the K–12 level, APS Past President Norman Staub organized a full-day symposium for high school life sciences teachers and their students. More than 50 teachers and 100 students from New Orleans area schools attended the workshop. The morning session included presentations on cardiovascular physiology (Steven DiCarlo, Northeastern Ohio University), organ distensibility (Donald T. Frazier, University of Kentucky), and volumes of dilution (Norman Staub, University of California, San Francisco) along with a videotape on physiology research by the British Physiological Society. Groups of teachers and students then met with members of the APS Teaching Section for lunch and a tour of the exhibits and posters.



Norman C. Staub

In the afternoon, separate sessions were conducted for teachers and students. Teachers heard about the APS High School Science Teacher Summer Research in Physiology Program from Elizabeth Hannon, a former APS Research Teacher from Dallas Texas. Three other APS Research Teachers (Larry Blanchard, New Orleans; Glenda Brunato, San Francisco; and Stephanie Baron, San Diego) presented lesson plans they developed for use in their classrooms based on their research experiences. These three lesson plans, along with seven others developed by APS Research Teachers, were distributed to all teachers attending the symposium. Meanwhile, students heard presentations on careers in physiology (Rey Elizondo, University of Texas, El Paso) and the use of animals in research (Arthur Guyton, University of Mississippi).

What did students and teachers think of the workshop? A survey mailed after the workshop revealed that teachers were most excited by the seminars by APS physiologists, especially DiCarlo's presentation where teachers and students did mini-experiments with their own pulse and respiration rates. Students also rated the cardiovascular physiology presentation very highly, but of equal importance to them was the visit to the exhibit hall to view the vast array of technology used



Donald T. Frazier

High school life sciences teachers and their students at the Past President's Symposium.

by research scientists. Teachers were excited that students had an opportunity to see how scientists communicate with each other. One teacher wrote, "The poster exhibit was very interesting. It not only gave the students and I information on current developments in science, but also stressed the importance of scientific investigation and report writing." Another teacher expressed her thanks for the way that APS members valued the students attending the workshop: "Often times, students are overlooked and ignored, but the APS regarded them as young adults and exposed them to a tremendous amount of information in only one day—Thank you!" Finally, it appears that the information and lessons distributed during the workshop are already being used in classrooms; one student commented on his evaluation form that he had already demonstrated Staub's volumes of dilution activity to his classmates!

Because of the success of the 1993 symposium, another symposium is being planned for Experimental Biology '94 in Anaheim. If you are interested in being a lunch tour guide, assisting teachers or students in conducting mini-experiments, or just lending a hand, please contact Marsha Matyas, APS Education Officer at (301) 530-7132. Come and catch a glimpse of the future of physiology!

1992 Summer Research Fellows at Experimental Biology '93. The Fellows met with members of Council, Education Committee, and their summer research mentors during a special luncheon in their honor. After lunch the Fellows attended and participated in the Past President's Symposium.

Future Meetings

1993	
APS Conference Physiology and Pharmacology of Motor Control	October 2–5 San Diego, CA
APS Conference Signal Transduction and Gene Regulation	November 17–20 San Francisco, CA
1994	
Experimental Biology '94	April 24–28, Anaheim, CA
APS Conference Physiology of the Release and Activity of Cytokines	June 25–28 New Haven, CT
APS Conference Mechanotransduction and the Regulation of Growth and Differentiation	October 5–8 Sarasota, FL
Intersociety Meeting Regulation, Integration, Adaptation: A Species Approach	October 29–November 2 San Diego, CA
1995	
Experimental Biology '95	April 9–14, Atlanta, GA

President's Report

I am delighted to summarize, briefly, some of the major activities of the Society during my tenure as President, which commenced with the final FASEB meeting in Anaheim in 1992 and concluded with the inaugural Experimental Biology '93 meeting last March in New Orleans. This year, which flew by all too quickly, witnessed the initiation of some of the programs that stemmed from the Society's Strategic Plan (see *The Physiologist* 35: 37,40–42). Inasmuch as many of these initiatives have already been described in *The Physiologist*, I will only touch on them briefly.

In recognition of the increasing importance of public affairs and educational efforts designed to persuade legislators and the public at large of the importance of biomedical research and the humane use of animals, the Society has expanded its staff dealing with these activities. Alice Hellerstein was employed as a full-time Public Affairs Officer, replacing William Samuels, who retired last year and had served half-time in that capacity. In addition, we have established a new Office of Education that will be directed by Marsha Matyas and a Marketing Office that will be coordinated by Jacqueline McKee.

In keeping with the objective of increasing membership benefits, the APS Council enthusiastically approved the establishment of "Career Enhancement Awards" that could be used for the purposes of defraying the costs of travel, tuition, etc.; the essential criterion for these awards is that they be based on need and directed toward enhancing an APS member's ability and/or potential for future research and/or educational activities (see p. 92 for details).

In addition, Council unanimously and enthusiastically approved a plan to provide each Section with funds to endow an annual lectureship. These "APS Distinguished Lectureships" are designed to strengthen the scientific meetings, highlight the type of research represented by a given section, and foster increased participation by the membership in Society functions. In allocating the funds, the Council asked each Section to name the lectureship after a distinguished physiologist who has made seminal contributions to that area of research. It is expected that these eminent lecturers will be an integral part of the Section's activities during the spring Experimental Biology meeting. In addition to presenting a lecture, they would be expected to attend and participate in the Section's social functions, interact with members on a personal basis, etc.

As announced in *The Physiologist* (35: 302, 1992), during the past year the Society created a Gopher Information Server for the electronic distribution of APS information worldwide, using NREN/Internet. In addition to containing up-to-the-minute Society news, including public affairs activities and alerts, committee actions and employment opportunities, the bulletin board lists the tables of contents of all of the journals published by the Society and an easy-to-use search-and-find program (WAIS). In the not-too-distant future, we plan to publish the abstracts of manuscripts electronically when the manuscript is accepted for publication and thus months before it actually appears in hard copy. We expect that this program will be announced shortly.

In addition to the Gopher initiative, the Society continues to explore the possibility of the electronic publication of our journals in an effort to remain at the frontier in the realm of information.

Finally, the Society remains active in efforts aimed at assisting our scientific colleagues in the Former Soviet Union (FSU) and eastern block countries during this period of extreme hardship. The problems are of staggering proportions and complexity and there is little we can do, particularly at a time when the biomedical sciences in this country are facing stringent times. Nonetheless, we have, through a program sponsored by the AAAS, obtained a grant of $12,000 to send 48 free subscriptions of our publications to the FSU as a contribution to sustain the scientific infrastructure in that region. It is hoped that in the not-too-distant future, the distribution of our literature will be accomplished electronically.

In closing let me say that thanks to the loyalty and dedication of its membership and staff, the Society is weathering these difficult times in fine form. It was a pleasure and honor to serve as President—an experience I will always treasure.

Stanley Schultz

A LASTING LEGACY?
(continued from p. 84)

growth in various areas. Indeed, in 1994, the proposed budget included a 1% greater growth rate in the areas of critical science and technology than in critical health needs.

As former Congressman Joseph Early stated during the meeting with society representatives, it is a plan that can easily be sold to the public, bearing in mind that the only thing that stimulates Congress is the public. It is a call to arms, designed to increase the public's commitment to NIH and to make them advocates for biomedical research. With the public's support, it will not be necessary to worry about which program receives what level of funding. As Lowell Weicker stated when he founded Research!America, "every boat will rise as NIH's budget rises."

Bernadine Healy's influence will not end with her departure on June 30. She has left each of us with a legacy. Only time will tell whether Investment for Humanity will be a lasting legacy that will strengthen the biomedical research enterprise.

Martin Frank

American Physiological Society 146th Business Meeting

Time: 6:15 PM, Wednesday, March 31, 1993
Place: Convention Center, New Orleans, LA

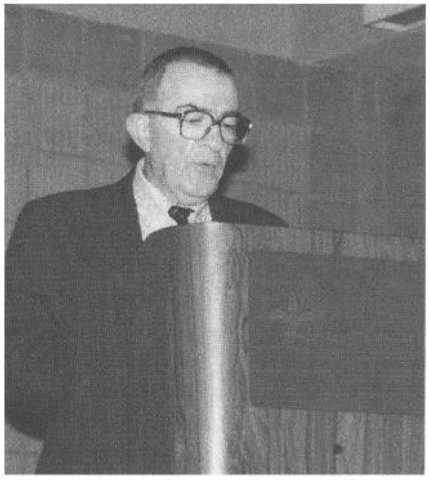
I. Call to Order

President Stanley G. Schultz called the meeting to order and welcomed the members to the 146th Business Meeting of the American Physiological Society. Distributed with the agenda were the proposed amendments to the Bylaws (Article III, Section 7, Article IV. Section 4.b., and Article IX, Section 2), and lists of awardees, deceased members, future Society meetings, and conferences.

II. State of the Society

Stanley Schultz expressed great pleasure in announcing that **Brian Duling**, University of Virginia, has been elected President-Elect (March 31, 1993—April, 29, 1994) by the membership. Also, the two newly elected Councillors are **D. Neil Granger** (March 31, 1993 - April 18, 1996), Louisiana State University, and **Barbara A. Horwitz** (March 31, 1993 - April 18, 1996), University of California, Davis, who will assume office at the close of the Business Meeting. They are replacing Allen W. Cowley, Jr., and David J. Ramsay, who are completing three-year terms on Council.

The Society is expanding activities in the area of public affairs under the direction of Alice Hellerstein. Marsha Matyas, Education Officer, and Jacqueline McKee, Marketing Coordinator, have joined the APS staff to assist in fulfilling the Society's Strategic Plan Goals and Objectives. In



Stanley G. Schultz

keeping with the APS Strategic Plan, Council is creating 12 annual distinguished lectureships to be administered by the APS Sections, career enhancement awards, and young investigator awards for excellence and scientific achievement. During the past year, the Society created a Gopher Information Server for the electronic distribution of APS information world-wide on NREN/Internet; a stand was taken against PETA, who threatened the Society with a malicious libel suit (see *The Physiologist*, Vol. 36:1, 3, 1993); and APS has been active in the dissemination of journals to the former Soviet Union. (A description of these activities are in the President's Report, p. 88).

III. Amendments to the Bylaws

In compliance with the Society Bylaws, the proposed amendments (Article III. *Membership*, Section 7. *Emeritus Members*; Article IV. *Officers*, Section 4-b, *Nominating Committee*; and Article IX. *Meetings*, Section 2, *Fall Meeting*) were published in *The Physiologist*, 36:6, 303, 1992. A motion was unanimously passed by the members approving the amendments to the Bylaws as follows:

ARTICLE III. *Membership.*

Section 7. *Emeritus Members.* A regular, associate, corresponding, or associate corresponding member may apply to Council for transfer to emeritus membership if that person (1) has reached the age of 65 and is retired from regular employment or (2) has been forced to retire from regular employment because of illness or disability. An emeritus member may be restored to ~~regular~~ membership status on request to Council.

ARTICLE IV. *Officers.*

Section 4. b. *Nominating Committee.* The Nominating Committee shall consist of the immediate Past President, who will serve as Chairperson, and ~~six~~ each members ~~elected from~~ of the Section Advisory Committee ~~according to a rotation plan~~. The Chairpersons of the Program Committee and Publications Committee shall serve as *ex officio* members. . . .

ARTICLE IX. *Meetings.*

SECTION 1. *Spring Meeting.* A meeting of the Society for transacting business, electing officers and members, presenting communications, and related activities, shall ordinarily be held in the Spring of each year.

~~SECTION 2. Fall Meeting. A Fall meeting of the Society shall be held at a time and place determined by the Council for presenting communications, electing members, and for transacting business. Under exceptional cir-~~

~~cumstances Council may cancel such a meeting.~~

SECTION ~~3~~ 2. *Special Meetings.* Special Meetings of the Society or of the Council may be held at such times and places as the Council may determine.

SECTION ~~4~~ 3. *Quorum.* At all business meetings of the Society fifty regular members shall constitute a quorum.

SECTION ~~5~~ 4. *Parliamentary Authority.* The rules contained in Roberts Rules of Order, Revised, shall govern the conduct of the business meetings of the Society in all cases to which they are applicable and in which they are not inconsistent with the Bylaws or special rules of order of the Society.

IV. Report on Membership

President-Elect William H. Dantzler presented the report on the status of the Society membership. The current membership of the Society is 7,413, of which 4,909 are regular members, 28 honorary, 807 emeritus, 350 corresponding, 768 associate, 52 associate corresponding, and 499 student members (see p. 110). Reference was made to the list of deceased members, and the membership observed a moment of silence in tribute to their deceased colleagues (see p. 114).

V. Affairs of the Society

Martin Frank, Executive Director, expressed pleasure in having the opportunity to address the members. During the past year, the Council has strived to initiate new and exciting programs as described by President Schultz. The membership is encouraged to become more involved in Society affairs. To build the scientific meetings to reflect the excellence of physiology, members are urged to communicate with their Program Advisory Committee representatives (listed on p. 110) with proposals for APS Conferences.

Two **APS Conferences** are scheduled in October and November 1993, "Physiology and Pharmacology of Motor Control in San Diego, October 2–5, and "Signal Transduction and Gene Regulation," in San Francisco, November 17–20. In 1994, two conferences, "Physiology of the Release and Activity of Cytokines" and "Mechanotransduction and the Regulation of Growth and Differentiation" will be held in New Haven, CT, and Sarasota, FL, respectively. In addition, an intersociety meeting, "Regulation, Integration, Adaptation: A Species Approach," organized by the Comparative Physiology Section, is scheduled for San Diego, October 29–November 2.

In Clinton's budget, the FY 1994 appropriations for NIH is only $300 million greater thant FY 1993. As a result, it is unlikely that the NIH budget will keep up with inflation since it has only received a meager 3.3% increase. Unfortunately, most of the increase is already earmarked for AIDS and breast cancer research. To encourage the allocation of additional funds, FASEB has organized a petition campaign. Petitions urging additional funding for biomedical research are posted in the convention center and hotel lobbies. The Executive Director urged the

APS Council. Back row, l-r: D. Neil Granger, Leonard S. Jefferson, Frank L. Powell, Jr., Mordecai P. Blaustein, Leonard R. Johnson, L. Gabriel Navar, and Heinz Valtin. Front row, l-r: David J. Ramsay, Norman C. Staub, Stanley G. Schultz, William H. Dantzler, Allen W. Cowley, Jr., and Helen J. Cooke.

members to sign this petition as well as to take a copy home for signature by their colleagues. Information about APS journals, meetings, membership, education, public affairs, and employment opportunities is available on the INTERNET/Gopher Information Server network, and the group was invited to utilize the information. In closing, Frank introduced the APS staff and invited the membership to contact them in Bethesda on issues of interest and concern to them.

VI. Awards

A. Ray G. Daggs Award

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

This year, Schultz said that he was honored to present the 1993 Ray G. Daggs Award to **Robert Elder Forster II**, who served as president of APS in 1966-67 (see p. 93).

B. Caroline tum Suden Professional Opportunity Awards

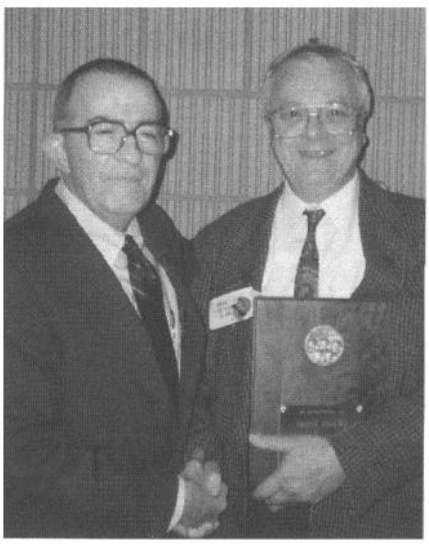
This year, 12 awards were made possible by the bequest of Caroline tum Suden, who was a long-time member of the Society. Awards are open to graduate students or postdoctoral fellows who present papers at the spring meeting. Recipients receive a $500 check for travel to the meeting, paid registration, and have access to the FASEB Placement Service. **Hannah Carey**, chairperson of the Women in Physiology Committee, assisted the President in presenting the awards to **Gerard D'Angelo** (University of Vermont, Burlington), **Robin L. Davisson** (University of Iowa, Iowa City), **Jeffery P. Gaboury** (University of Calgary, AB, Canada), **Suzanne G. Greenberg** (University of Michigan, Ann Arbor), **Samantha P. Harris** (University of Michigan, Ann Arbor), **Nancy L. Kanagy** (University of Michigan, Ann Arbor), **Diane H. Munzenmaier** (Medical College of Wisconsin), **Corinn M. Pawloski-Dahm** (Emory University, Atlanta, GA), **Lynn E. Schlanger** (Emory University, Atlanta, GA), **Irene C. Solomon** (University of California, Davis), **Annette M. Von Thun** (Tulane University, New Orleans, LA), and **Joanne K. Zaleski** (University of Alabama, Birmingham) (see p. 141).

C. Procter & Gamble Professional Opportunity Awards

The Procter and Gamble Company provides support for Professional Opportunities Awards. The APS Sections selected 17 predoctoral students, who are within 12–18 months of receiving a PhD degree and presenting a paper as first author at the spring meeting. **Gary Howell** was recognized for having made these awards possible by a generous grant to the Society as were the following recipients, who were presented a $500 check as well as paid registration (see p. 141).

D. NIDDK Travel Fellowship for Minority Physiologists

A grant from the National Institute of Diabetes, and Digestive and Kidney Diseases (NIDDK) enables the Society to provide minority physiologists travel fellowship awards to attend and present papers at the spring meeting and APS conferences. Twenty-four undergraduate, predoctoral and postdoctoral scientists, who obtained their undergraduate education in the APS Porter Physiology Development Program, MBRS, or MARC institutions were recognized (see p. 140).



Stanley G. Schultz and Norman C. Staub

VIII. Recognition

Councillors **Allen Cowley** and **David Ramsay** complete their terms at the close of this meeting. Schultz expressed pleasure in having served with them on Council and recognized their guidance, wisdom, and dedication to the Society.

The Society has had the good fortune of having **Norman Staub** as President, who has been very instrumental in pursuing education activities, especially at the high school and undergraduate level. In recognition of his many contributions to the Society, Schultz took great pleasure in presenting him with a plaque commemorating his presidency. He then passed the gavel to William Dantzler, University of Arizona, as the 66th President of the American Physiological Society.

There being no new business, the meeting was adjourned at 7:00 PM, March 31, 1993.

William H. Dantzler
President-Elect

New Awards Available

APS Career Enhancement Awards

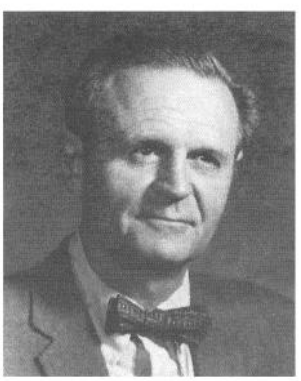
The Council is pleased to announce the establishment of the APS Career Enhancement Award Program. This award program is an outgrowth of the Society's Strategic Planning process and is designed to enhance the career potential of our members. The awards will provide up to $4,000 to allow individuals in the early phases of their careers to obtain special training and in 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 scientific skills;
- 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.

For additional information about this new award program, contact Martin Frank, Executive Director, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814. Tel: (301) 530-7118. Fax: (301) 571-8305.



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 awardees in their research program. Awards do not include any indirect cost reimbursement.

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

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

For information about application procedures, contact Martin Frank, Executive Director, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814. Tel: (301) 530-7118. Fax: (301) 571-8305.

1993 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 each year to a physiologist for distinguished service to the Society and to physiology.

This year, Stanley G. Schultz said he was honored to present the 1993 Ray G. Daggs Award to Robert Elder Forster II, who was born in St.David's, Pennsylvania in 1919 and has maintained his interests as a Keystone stater most of his life. His early education was in the Sheffield Scientific School of Yale University in the biological sciences, after which he entered the University of Pennsylvania's School of Medicine from which he graduated (MD) in 1943, with internship in medicine at Peter Bent Brigham Hospital in Boston. He entered the Army and was assigned to the Quartermaster Corps Climatic Research Laboratory in Lawrence, Massachusetts, where he did research on temperature regulation and heat exchange while designing and testing new field clothing and equipment for military personnel. As a medical student, he became interested in research under Julius Comroe and Carl Schmidt, publishing his first article, "The medical use of thiocyanates in the treatment of arterial hypertension" (*Am. J. Med. Sci.* 206: 668-686) in 1943. He participated in experiments dealing with high altitude and cold environmental physiology, and with Henry C. Bazett, published a paper "Temperature changes in blood flowing in arteries and veins in man" in the *Journal of Applied Physiology*, volume 1, number 1:3-9, 1948. After discharge from the Army, Forster spent a year at Harvard Graduate School studying

mathematics and physical chemistry, and later, two years in the Physiology Department with Eugene Landis. He accepted his first academic appointment as assistant professor of physiology in anesthesiology with Robert Dripps and Julius Comroe at the University of Pennsylvania Graduate School of Medicine. In the exciting atmosphere established by Dripps, Comroe, Kety, Koelle, Fowler, and DuBois, he launched upon his life-long studies of respiration, the diffusing capacity of red cells, gaseous exchanges in lungs and tissues, and temperature regulation. Most physiologists are familiar with Comroe's classic little book entitled *The Lung*, which was generated during this research era and which quickly became a medical best seller. Forster became professor (1961) and was later named chairman of physiology in the Graduate School while John Brobeck served as chairman of physiology in the Medical School. In 1970, the two departments were fused under Forster's chairmanship.

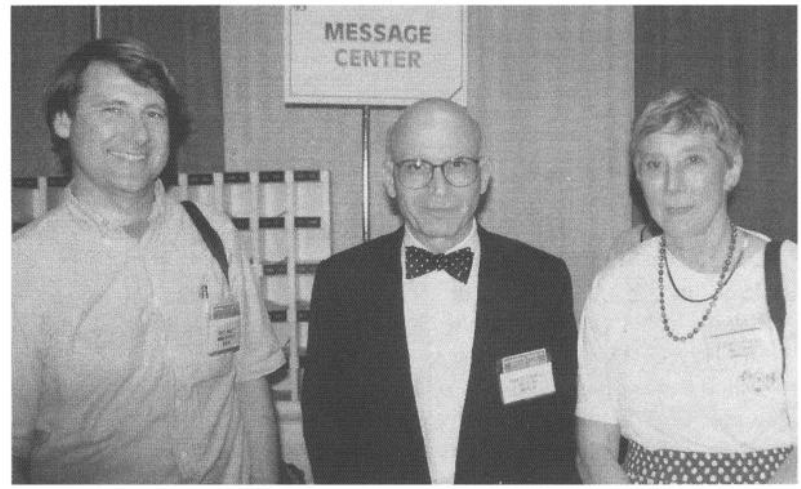
Forster attended his first APS meeting in 1946 and has served on many Society committees (Publications, 1963-65; Council, 1963-65; President, 1966-67; Editorial Board of the *Handbook of Physiology*, 1973-79; Perkins Memorial Fund Committee, 1968-70; Daggs Award Committee, 1975-78; Finance Committee, 1978-81). As chairman of the Finance Committee for the XXIV IUPS Congress held in Washington, DC in 1968, he was instrumental in raising sufficient funds to finance the Congress with a substantial surplus, which was turned over to APS as a Trust Fund devoted to support travel grants to future IUPS Congresses.

The APS is not the only group to have been impressed with Bob's broad experience and expertise. He was a member of the Cardiovascular Study Section, NIH (1960-64), General Clinical Research Center Committee (1964-71), National Advisory Heart Council (1967-71), National Academy of Sciences, American Society of Clinical Investigation, Biophysical Society, and the Society of General Physiologists.

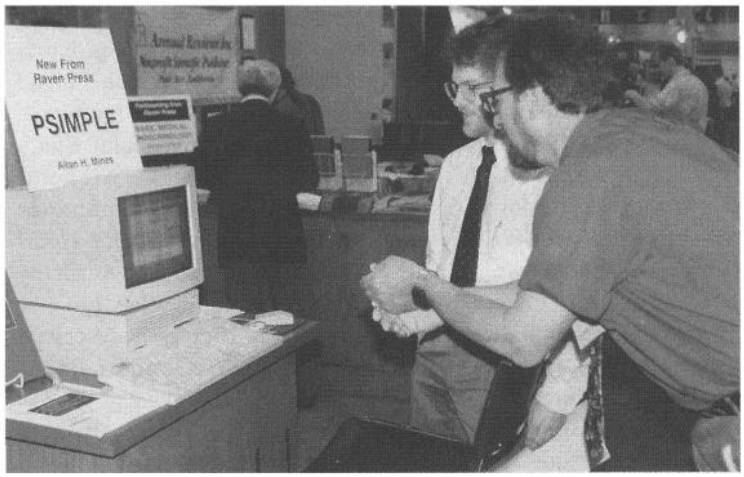
Accepting the award, Robert Forster said,"I am deeply honored to receive the Ray G. Daggs Award, particularly because the Society has been my first love and because of my distinguished predecessors who came before me. It has been a quarter of a century since I have been up on this stage addressing the membership. I remember about thirty years ago when Bob Berliner asked if I would join the Publications Committee. I knew Ray Daggs, who was a distinguished character, when he was a Colonel in the Nutrition Corp and I was a First Lieutenant. I also remember when the Business Meetings were wonderful town meetings and was sadden to see them change. I deeply appreciate this award, and I wish the Society the very best."

Experimental Biology '93

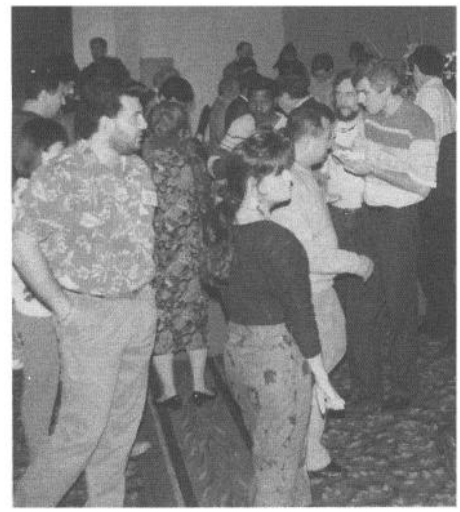
New Orleans



Robert B. Banzett, Charles V. Paganelli, and Bodil M. Schmidt-Nielsen at Respiratory History Symposium.

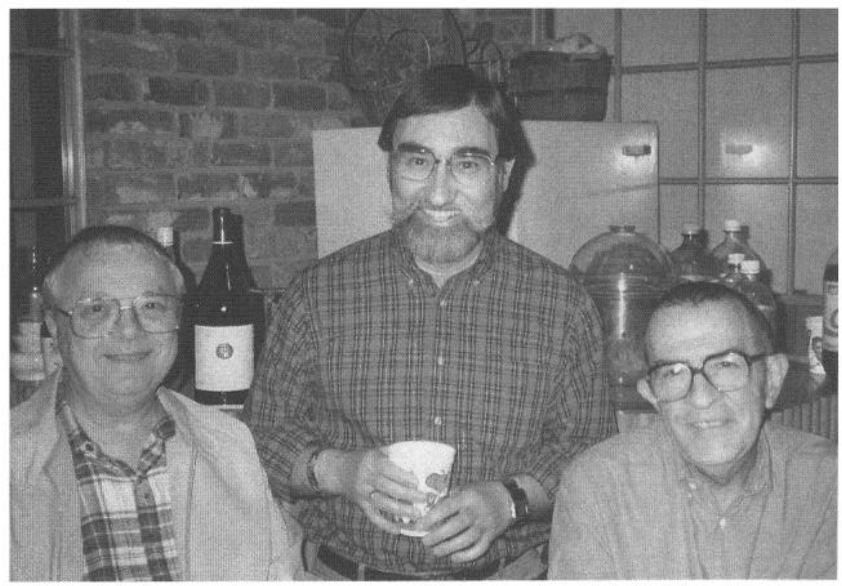


Exhibit



APS Mixer

Marc P. Kaufman and Vernon S. Bishop

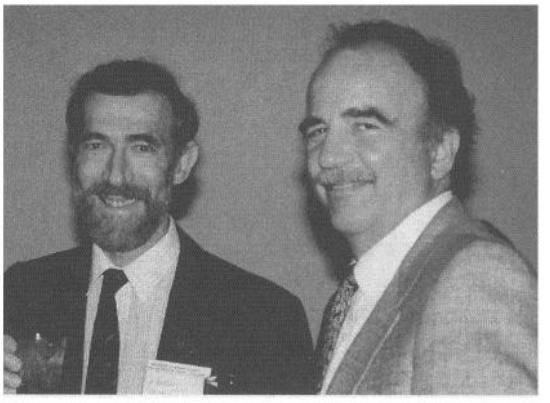


Norman C. Staub, William H. Dantzler, and Stanley G. Schultz

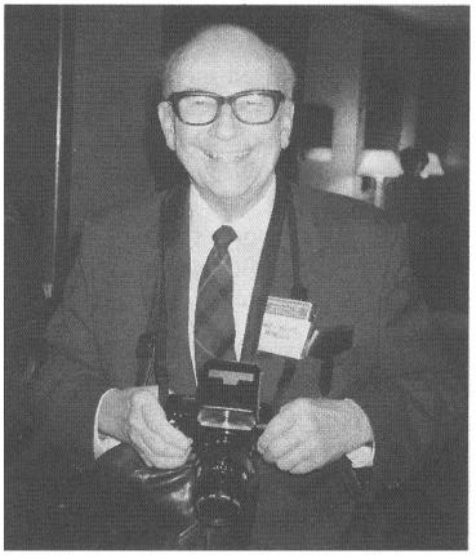
Experimental Biology '93

New Orleans

Stanley G. Schultz, Robert E. Forster II, and Gerhard H. Giebisch



Peter D. Wagner and Joseph R. Rodarte



A special thanks to Ralph Kellogg for supplying photographs of Experimental Biology '93.

Carlotta E. Groves, Denise Mills, and Arnold L. Silva

L-r: Eleanor Ison-Franklin, Cynthia Jacklet, Enchanta Murphy, Francis Bosah, and Jacqueline Foster

Education

APS Participates in 44th ISEF

The American Physiological Society participated in the 44th International Science and Engineering Fair (ISEF), Biloxi, Mississippi, May 9–15, 1992. The ISEF, the "World Series" of science fairs, is held annually and marks the culmination of a selection process involving thousands of schools and regional fairs. In Biloxi, APS joined with 60 other professional organizations making awards in a variety of disciplines.

The APS selection committee consisted of Aubrey E. Taylor, Steven T. Ballard, and Joseph W. Barnard from the Department of Physiology, University of South Alabama College of Medicine; Robert Hester, Bruce Van Vliet, and Jean-Pierre Montani from the Department of Physiology and Biophysics, University of Mississippi Medical Center; and Martin Frank and Marsha L. Matyas, American Physiological Society. The selection committee had the difficult task of first identifying which of the more than 750 ISEF finalists had projects related to the physiological sciences. From a potential pool of 135 projects, the committee then had to visit and interview the candidates to select the awardees.

During the awards ceremony, the APS presented four awards for excellence in the physiological sciences: a first award of $250 and three honorable mention awards. All winners received certificates, subscriptions to *News in Physiological Sciences*, brochures on careers in physiology, and APS T-shirts: "Physiologists Know the Inside Story."

The first prize recipient was Elizabeth Sara Molly Rosenberg, Alice Deal Junior High School, Washington, DC for "Color Perception Aftereffects: Retinal or Cortical?"

The recipients of the Honorable Mention Awards were Vincent A. Voelz, Anoka Senior High School, Anoka, Minnesota for "Examining Bifurcation in a System of Forced Van de Pol Oscillators: A Nonlinear Model of the Heart"; Siri Sastri, A&M Consolidated High School, College Station, Texas for "Link Between Nicotine in Cigarettes and Atherosclerosis"; and Aashish Mahesh Pandya, Louisiana School for Math, Science, and the Arts, Natchitoches, Louisiana for "Does Obesity Affect Pulmonary Functions in Men and Women?"

The judging committee regretted that it was only able to make four awards, because there were so many outstanding projects that deserved recognition. Although nearly two-thirds of the student projects at the ISEF dealt with life sciences, only 12 of the 61 groups making special awards were life science organizations. This makes the role of the American Physiological Society even more critical to the many students who committed much time and effort to their research project in life sciences fields. The impact of other APS education activities was also reflected in the students' research projects: One finalist and one honorable mention winner did their research in the laboratories of APS members, and our first place winner was the student of one of our previous Summer High School Research Program Teachers.

Marsha L. Matyas and Martin Frank presenting physiology awards at ISEF.

1995 APS Conferences

Understanding the Biological Clock: From Genetics to Physiology
Organized by Jay C. Dunlap and Jennifer J. Loros (Dartmouth)

New Discoveries Within the Pancreatic Polypeptide Family: Molecules to Medicine
Organized by William Zipf (Children's Hospital, Columbus), Ian Taylor (Duke), Claes R. Wahlestedt (Cornell), Richard Rogers (Ohio State), and Helen J. Cooke (Ohio State)

1993 High School Science Teachers Summer Research Program

Twelve high school science teachers were selected for the 1993 Summer Research Program sponsored by the American Physiological Society. The program, in its fourth year, provides high school science teachers with experiences in modern physiology research.

The 12 teachers, selected in a national competition, were awarded grants that included up to a $5,000 stipend plus $750 to support the teachers' attendance at the April 1994 Experimental Biology meeting in Anaheim, where they will participate in a workshop and be honored at a luncheon.

Listed are the teachers, their high schools, and their host institutions and mentors.

- Inez H. Archie, John Glenn High School, Norwalk, CA; USC School of Medicine, Neil Kaplowitz.
- Susan A. Boehm, Woodlands High School, Hartsdale, NY; New York Medical College, Francis L. Belloni.
- Mark G. Collins, Herrin High School, Herrin, IL; Southern Illinois University, Carbondale, Michael F. Shanahan.
- Linda West Hill, Mary G. Montgomery High School, Semmes, AL; University of South Alabama School of Medicine, Aubrey E. Taylor.
- David R. Honeycutt, Santa Rita High School, Tucson, AZ; University of Arizona College of Medicine, Paul C. Johnson.
- Nancy Palaez, Northwestern High School, Indianapolis, IN; Indiana University School of Medicine, C. Subah Packer and R. A. Rhoades.
- Bobby Pierce, Duncanville High School, Duncanville, TX; University of Texas Southwestern Medical Center, Jureta W. Horton.
- Mary E. Mauer, Samuel F. B. Morse High School, San Diego, CA; UCSD Medical Center, Kim E. Barrett.
- Bob Melton, Edmond Memorial High School, Edmond, OK; University of Oklahoma Health Science Center, Robert D. Foreman.
- Nichole Scott, City High School, Iowa City, IA; University of Iowa Howard Hughes Medical Institute, Kevin P. Campbell.
- David A. Smith, Troy High School, Troy, NY; SUNY, Albany, Henry Tedeschi.
- Denise C. St. Clair, Lakewood High School, St. Petersburg, FL; University of South Florida, John Dietz, Bruce Lindsey, Davis Weiss, and Carleton Baker.

High School Science Teachers Research in Physiology Program

The American Physiological Society is pleased to announce the continuation of a program aimed at providing high school science teachers with experience in physiology research. Each grant supports the full time involvement of a high school teacher in physiology research in the laboratory of an APS member for 8-10 weeks during the summer. In addition to a $5,000 stipend, grants will includes a $750 allowance for the high school teacher to attend the annual APS meeting, Experimental Biology '95. At the meeting, a special luncheon for the high school teachers and their research sponsors will be held so participants can share their experiences. Cost sharing of the teacher's stipend or travel award by the APS member's institution is encouraged but not required.

Grant awards will be based on the overall quality of the proposed research experience for the teacher, including the proposed level of involvement in the research activities of the laboratory; the background and teaching responsibilities of the high school teacher; the quality of the research program as indicated by the publication record and financial support of the APS member; plans for other activities in which the high school teacher will take part; plans for continued interaction between the high school teacher and the APS member or the respective institution; and an indication of the expected impact of the high school teacher's participation in his/her own classroom and/or school. The APS Education Officer can assist teachers in making connections with APS members in their geographic areas.

Additional information concerning the High School Science Teachers Research in Physiology Program and application forms can be obtained from Marsha Lakes Matyas, Education Officer, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel: (301) 530-7132; fax: (301) 571-8305.

The program encourages the participation of minority groups by making special efforts to include high school science teachers who are members of underrepresented minority groups or who teach significant numbers of minority students.

Application Deadline: January 14, 1994

Meetings and Conferences

Experimental Biology '94

Anaheim, CA
April 24–28, 1994

Cardiovascular Biology

Mechanisms of Contractile Dysfunction of the Hypertrophied Adult Cardiocyte. G. Cooper, *Cardiovascular Section*

Leukocyte—Microvascular Interactions in Cerebral Ischemia. G.J. Del Zoppo and G.W. Schmid-Schoenbein, *BMES*

Mechanical Stresses and Cell Function. J. A. Frangos, *NASB*

Physiology and Pathobiology of Post-Capillary Venules. H. J. Granger, *Cardiovascular Section*

Cell Injury

Pathophysiological Role of Endothelin in Renal/Cardiovascular Disease. J. P. Granger and T.J. Opgenorth, *Renal and Water & Electrolyte Homeostasis Sections and Liaison with Industry Committee*

Molecular and Cellular Mechanisms of Endothelin. D. M. Pollock, *Renal and Water & Electrolyte Homeostasis Sections and Liaison with Industry Committee*

Growth & Development

Biophysical Regulation of Metabolism, Growth, and Remodeling in Musculoskeletal Tissues. R. L. Sah, *BMES*

Epithelial Cell Biology

Epithelia as Components of the Common Mucosal Immune System. G. A. Castro and H. Cooke, *Gastrointestinal Section and Epithelial Transport Group*

Epithelial Cl^- Channels. J. Cuppoletti, *Epithelial Transport Group*

Workshop: Strategies for Developing Differentiated Epithelial Cell Lines. U. Hopfer, *Epithelial Transport Group*

Cytoskeletal Regulation of Membrane Transport Events. L. J. Mandel and J. W. Mills, *Cell & General Physiology, Renal, Gastrointestinal, and Cardiovascular Sections and Epithelial Transport Group*

Sensing and Regulating Cell Volume. R. G. O'Neil and N. K. Wills, *Cell & General Physiology, Renal, and Gastrointestinal Sections and Epithelial Transport Group*

Cytokines in Epithelial Cell Biology. A. W. Stadnyk and F. Shanahan, *Gastrointestinal, Cell & General Physiology, Renal, and Respiration Sections and Epithelial Transport Group*

Inflammation

Cytokine Mediated Signal Transduction Pathways: Effects on Cellular Gene Expression and Function. E. Benveniste, *Cell & General Physiology Section and Epithelial Transport Group*

Metabolic Processes

Molecular Advances in the Study of Hibernation. H. V. Carey, *Comparative Physiology Section*

Multiple Signalling Pathway in Steroid/Thyroid Hormone Action. W. W. Chin, *Endocrinology & Metabolism Section*

Adipocytes and Adiposity: Regulation by Hormones and Cytokines. C. Hofmann, *Endocrinology & Metabolism Section and Liaison with Industry Committee*

The Importance of Lavoisier's Work for Physiology and Nutritional Science. J. B. West and K. J. Carpenter, *History of Physiology Group and AIN*

Molecular Regulation & Structural Biology

Signal Transduction and the Regulation of Hematopoietic Cell Growth. E. R. Jaffé, *SEBM*

Neurobiology

Pregnancy: Baroreflex Regulation Gone Wrong? V. L. Brooks and S. Jacobs-Kaufman, *Cardiovascular, Water & Electrolyte Homeostasis, and Neural Control & Autonomic Regulation Sections*

Spinal Mechanisms of Autonomic Regulation. F. J. Gordon, *Neural Control & Autonomic Regulation Section*

Molecular Basis of Fever and Related Host Responses. M. J. Kluger, *Environmental & Exercise Physiology, Comparative Physiology, and Neural Control & Autonomic Regulation Sections*

Brain Aging. R. J. Reiter, *Central Nervous System Section*

Respiratory Biology

Cellular Regulation of the Endothelial Barrier. J. Bhattacharya, *Respiration Section*

Multiple Physiological and Biochemical Roles of Carbonic Anhydrase. R. P. Henry, *Comparative Physiology and Respiration Sections*

Comparative Adaptations to Environmental Hypoxia: New Perspectives on Accommodations and Compensations. J. W. Hicks and P. Lutz, *Hypoxia Group, Comparative and Respiration Sections*

Additional APS Sessions

Physiological Functions of Atrial Natriuretic Factor Prohormone Peptides. J. R. Dietz, *Water & Electrolyte Homeostasis Section and Liaison with Industry Committee*

Adaptive Responses of Muscle to Microgravity: From Terrestrial Models to Spaceflight Experiments. E. J. Henriksen, *MyoBio Group and Environmental & Exercise Physiology Section*

Molecular Physiology of Major Sodium Transporters. J. H. Kaplan, *Epithelial Transport Group and Renal and Cell & General Physiology Sections*

Indicator Dilution Theory: in vivo Cell Biology. J. H. Linehan, *BMES*

One-Hour Debate: Resolved that the Swimming Rat Model Can Be Used Effectively to Study the Cardiovascular Adaptations to Exercise in Humans. E. R. Nadel, *Environmental & Exercise Physiology Section*

Workshop: Transgenic Animals in Physiological Research. L. E. Olson and C. Sigmund, *Education Committee*

Workshop: Magnetic Resonance Techniques for in vivo Physiology. N. J. Pelc, *Cardiovascular Section*

Role of Natriuretic Peptides in Cardiorenal Regulation. A. A. Seymour, *Liaison with Industry Committee and Renal and Water & Electrolyte Homeostasis Sections*

Abstract Deadline

December 1, 1993

Call for Symposia Topics—Spring 1995

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

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

Symposia proposals are welcome for the annual spring meeting, Experimental Biology '95. Symposia will be considered for presentation as part of the traditional APS symposia program that highlights areas of interest to the physiological community. In addition, symposia will be considered for inclusion in the cross-society program focusing on one of eight theme areas: Cardiovascular Biology; Respiratory Biology; Epithelial Cell Biology; Molecular Regulation and Structural Biology; Neurobiology; Cell Injury; Inflammation; Growth and Development; and Metabolic Processes.

Proposals should be submitted to the appropriate Section Program Advisory Committee representative. All proposals should include the following: 1) title; 2) organizer and address; 3) abstract (150 words); 4) number of half-day sessions required; 5) names of session chairperson(s); 6) presentors-discussants—approximately six per half day (list the participant's name and title of presentation as it would appear in the program); 7) brief biographical sketch (2–3 sentences) of each speaker in the symposium; and 8) budget information. Symposia are evaluated on the basis of their scientific merit. Organizers will be notified shortly after the 1994 Spring Meeting on acceptance of their symposia.

Section Program Advisory Committee Representatives

Chair
Heinz Valtin
Department of Physiology
Dartmouth Medical School
Hanover, NH 03755-3836
603-650-1719

Cardiovascular
Diana L. Kunze
Molecular Physiology and Biophysics
Baylor College of Medicine
One Baylor Plaza
Houston, TX 77030
713-798-5702

Frank C.-P. Yin
Cardiology Division
Johns Hopkins Hospital
565 Carnegie Building
Baltimore, MD 21205
301-955-5999

Cell & General Physiology
Jack H. Kaplan
Department of Physiology
University of Pennsylvania
37th & Hamilton Walk
Philadelphia, PA 19104-6085
215-898-5035

Central Nervous System
Celia D. Sladek
Department of Physiology
UHS/The Chicago Medical School
3333 Green Bay Road
North Chicago, IL 60063
708-578-3280

Comparative Physiology
Stephen H. Wright
Department of Physiology
University of Arizona
Tuscon, AZ 85724
602-626-4253

Endocrinology & Metabolism
Jessica Schwartz
Department of Physiology
University of Michigan
6815 Medical Science Building II
Ann Arbor, MI 48109-0622

Environmental & Exercise Physiology
Charles M. Tipton
Department of Exercise and Sport Sciences
University of Arizona
Tuscon, AZ 85721-0001
602-621-6990

Gastrointestinal Physiology
Patrick Tso
Department of Physiology
LSU Medical Center
PO Box 33932
1501 Kings Highway
Shreveport, LA 71130
318-674-6016

Neural Control & Autonomic Regulation
Eileen M. Hasser
Department of Veterinary Biomedical Research
College of Veterinary Medicine
University of Missouri
Columbia, MO 65211
314-882-6125

Renal Physiology

Bruce A. Stanton
Department of Physiology
Dartmouth Medical School
615 Remsen Building
Hanover, NH 03755-3836
603-650-1175

Leon C. Moore
Department of Physiology
SUNY Health Science Center
Stony Brook, NY 11794-8661
516-246-2077

Respiratory Physiology

Aron B. Fisher
Institute for Environmental Medicine
University of Pennsylvania
School of Medicine
John Morgan Building
Philadelphia, PA 19104-6068
215-898-9108

Teaching of Physiology

Philip A. McHale
Department of Physiology and Biophysics
University of Oklahoma Health Science Center
PO Box 26901
Oklahoma City, OK 73190
405-271-2316

Water & Electrolyte Homeostasis

Ian A. Reid
Department of Physiology
University of California
San Francisco, CA 94143-0444
415-476-1585

Epithelial Transport Group

John Cuppoletti
Department of Physiology and Biophysics
University of Cincinnati
College of Medicine
231 Bethesda Ave., ML576
Cincinnati, OH 45267-0576
513-558-3022

History of Physiology Group

Giuseppe Sant'Ambrogio
Department of Physiology and Biophysics
University of Texas Medical Branch
Galveston, TX 77550-2781
409-772-3398

Hypoxia Group

Reed W. Hoyt
Altitude Research Division
USARIEM
Kansas Street
Natick, MA 01760-5007
508-651-4802

Myo-Bio Group

Jack A. Rall
Department of Physiology
Ohio State University
1645 Neil Avenue
Columbus, OH 43210
614-292-6137

Liaison With Industry Committee

Stephen F. Flaim
Pharmacology & Toxicology
Alliance Pharmaceutical Corporation
3040 Science Park Road
San Diego, CA 92121
619-558-4300

Education Committee

Frank L. Powell, Jr.
Department of Medicine 0623A
University of California
9500 Gilman Drive
San Diego, CA 92093-0623
619-534-4190

1994 APS Conferences and Meetings

APS Conferences

Physiology of the Release and Activity of Cytokines
Organizers: J. T. Stitt, J. G. Cannon, G. W. Duff, M. J. Kluger, A. J. Lewis, and I. G. Otterness
June 25–28, Yale University, New Haven, CT

Mechanotransduction and the Regulation of Growth and Differentiation
Organizers: H. E. Morgan, P. A. Watson, D. E. Rannels, F. Sachs, M. Schwartz, and H. Vandenburgh
October 5–8, Sarasota, FL

Intersociety Meeting

Regulation, Integration, Adaptation: A Species Approach
Organizers: E. J. Braun, J. R. Hazel, and S. H. Wright
October 29–November 2, San Diego, CA

Physiology and Experimental Biology '93

Experimental Biology '93 (EB 93) was held March 28–April 1 in New Orleans, Louisiana and was a joint meeting of four FASEB societies (Physiology, Pharmacology, Pathology, and Nutrition) and several guest societies. A total of 5,069 volunteered abstracts were submitted. Of this total, 2,302 papers were received from the APS membership and three guest societies: Biomedical Engineering Society (BMES), North American Society of Biorheology (NASB), and Society of Experimental Biology and Medicine (SEBM). The physiology component of EB 93 represented 45% of the total abstracts received.

Of the 2,302 abstracts processed by APS, 21% (481) represented women researchers as first authors, and 8% (185) were received from institutions outside The Americas. Government laboratories represented 5% (107) of the abstracts received, and industry represented 4% (90). Table 1 provides information on the departmental affiliations of the first authors and indicates that 20% (468) were received from departments of physiology and 6% (132) from departments of physiology and biophysics.

Table 1. **Author Affiliations of Programmed Volunteered Papers**

Department	No. of Papers	% Total
Physiology	468	20
Physiology & biophysics	132	6
Medicine	157	7
Pharmacology	118	5
Surgery	108	5
Anesthesiology	99	4
Biology	93	4
Pediatrics	69	3
Biochemistry	35	2
Pathology	26	1
Anatomy	19	1
Other	326	46
No department listed	652	28

Table 2. **Volunteered Papers Sponsored by APS, BMES, NASB, and SEBM**

Society	Total Received	FASEB Society Program Designation				Total
		APS	ASPET	ASIP	AIN	
APS	2,135 (94%)	1,453 (68%)	289 (14%)	206 (10%)	187 (9%)	2,135
BMES	57	47	3	4	3	57
NASB	1	1	0	0	0	1
SEBM	109	37	22	26	24	109
Total	2,302	1,538	314	236	214	2,302

Table 3. **APS Programmed Sessions**

Section	Slide	Poster	Poster Discussion	Symposia/ Invited	Total
Cardiovascular biology theme	28	45		2	75
Cell & general		2		3	5
Comparative	1	5		1	7
Endocrinology & metabolism		6		1	7
Environmental & exercise	1	5		1	7
Epithelial cell biology theme	8	15			23
Gastrointestinal		4			4
History		1		1	2
Hypoxia				1	2
Muscle		3		1	4
Central nervous system Neural control and autonomic regulation				1	1
Renal	1	2		2	5
Respiration	4	6		1	11
Teaching			1		1
Water & electrolyte homeostasis	4	4		1	9
BMES		3		2	5
SEBM				1	1
Public Affiars				1	1
NASB				1	1
Education Committee				2	2
Career Opportunities Committee				1	1
International Committee				1	1
Clinical Committee				1	1
Other*				4	4
Total	47	101	1	30	179

*Includes Bowditch Lecture, Cannon Lecture, Past-President's Symposium, and Space Life Sciences Lecture.

Table 4. **Programming of APS Nonthematic Volunteered Papers by Sections/Groups**

Section	No. of Abstracts
Cell & general	52
Comparative	40
Endocrinology & metabolism	43
Environmental & exercise	90
Gastrointestinal	32
History	2
Hypoxia	7
Muscle	64
Central nervous system	8
Respiration	70
Teaching of physiology	190
Water & electrolyte homeostasis	8
Biomedical engineering	41
Total	730

Table 2 provides the distribution of abstracts submitted to other societies for programming. A total of 764 (33%) abstracts selected categories falling under pharmacology, pathology or nutrition.

Table 3 displays the number and type of sessions programmed by each section, group and committee of the Society. Of the 179 sessions programmed by APS, 101 (56%) were scheduled as posters, 47 (26%) as slides, 30 (17%) as symposia or other invited sessions, and 1 as a poster discussion.

Table 4 displays the total number of nonthematic abstracts programmed by each section. The Cardiovascular Section, Neural Control & Autonomic Regulation Section, and Epithelial Transport Group are not represented here but are included on Table 5, which indicates the thematic breakdowns of abstracts and sessions. In addition some of the abstracts that might normally appear in a section program were actually programmed by the theme committees.

Experimental Biology '93 was the first effort by the FASEB societies to restructure the spring meeting in a manner designed to maintain elements of the large meeting while developing a "meeting within a meeting" format. The eight intersociety themes were developed by theme committees consisting of society representatives whose goal was to stimulate the cross-fertilization of ideas while limiting programming conflicts. The scheduling of theme sessions in contiguous rooms served to enhance intellectual interactions.

The Experimental Biology format is an evolving format designed to address the needs of physiologists and members of the scientific community. The "meeting within a meeting" format addresses the desires of many scientists to attend smaller meetings while providing them with exposure to a large exhibit program. Future Experimental Biology meetings will be strengthened by members' comments received after EB 93.

A number of corporate sponsors contributed to the financing of this meeting. The Society gratefully acknowledges contributions made by Boeing Missiles & Space Division, E. I. duPont Company, The Grass Foundation, Lockheed Missiles and Space Company, Miles Pharmaceutical Division, Procter & Gamble Company, SmithKline Beecham Pharmaceuticals, and Syntex Research.

Table 5. **Breakdown of Theme Categories by Abstracts and Sessions**

Theme	Theme Distribution by Abstracts			Theme Distribution by Sessions				
	Total Submitted	Minisymp Topics	Regular Topics	Total Sessions	Poster	Oral/ Slide	Mini-symp	Symposia/ Invited
Cardiovascular Biology	1,212	130	1,082	92	45	28	2	17
Cell Injury	180	35	145	18	4	69	0	8
Epithelial Cell Biology	217	8	209	32	15	8	0	9
Growth, Development & Aging	264	104	160	27	18	0	6	3
Inflammation	230	29	201	27	17	5	0	5
Mech. Molecular Regulation	168	35	133	18	7	3	0	8
Metabolism	461	150	311	45	28	0	13	4
Neuroregulation	227	10	217	25	19	1	0	5
Totals	2,959	501	2,458	284	153	51	21	59

APS Conference

Physiology of the Release and Activity of Cytokines

June 25–28, 1994
Yale University, New Haven, Connecticut

Preliminary Speakers and Topics

Cytokines/HPA Axis Interactions
Akira Arimura. Tulane University
Cytokine Circulation and Transport in the Body
William Banks. Virginia Medical College
Cytokines and Vascular Smooth Muscle
Debbie Beasley. Brigham & Women's Hospital
The Regulation of Cytokine Production
Bruce Beutler. Howard Hughes Medical Institute
Cytokines Elicited by Stress and Exercise
Joseph Cannon. USDA and Tufts University
Cytokines and Behavior
Robert Dantzer. National Medical Research Institute, France
Cytokines and Hormone Interactions
Adrianna Del Rey. Switzerland
The Ubiquity and Diversity of Cytokines in the Body
Charles A. Dinarello. New England Medical Center Hospital
Regulation of Cytokine Receptor Expression
Steven Dower. Immunex R&D Corporation
Cytokine Transport Proteins
Gordon Duff. Hallam Royal Hospital, UK
Interactions Among Cytokines
Scott Durum. National Cancer Institute
Cytokines and the Acute Phase Response
Jack Gauldie. McMaster University
Cytokines and the Pathogenesis of Fever
Matt Kluger. University of Michigan Medical School
The Effects of Cytokines on Sleep Patterns
James Kreuger. University of Tennessee
Cytokines and the Ecosinoids
Steven Kunkel. University of Michigan Medical School
Chimeric TNF Receptor Molecules
Werner Lesslauer. Hoffman-LaRoche Ltd., Switzerland
Effects of the Macrolides on Interleukin Production
Alan Lewis. Wyeth-Ayerst Research
Cytokines and Arthritis
Ivan Otterness. Pfizer Central Research Inc.
Cytokines and Pregnancy
Joy L. Pate. Ohio State University or
Roberto Romero. Wayne State University
Interactions Between Cytokines and Neuropeptides in the Brain
Nancy Rothwell. Manchester University, UK
Cytokines and the Blood Brain Barrier
John Stitt. J. B. Pierce Foundation Laboratory, Yale University Medical School
Interleukin I Receptor Antagonists
Robert Thompson. Synergen Labs.
Antisense Inhibition of Cytokines
Ben Tseng. Genta, Inc., San Diego

June 25	June 26	June 27	June 28
Registration	Cytokines and Homeostatic Mechanisms **Joseph G. Cannon**	Cytokines in Stress, Trauma, amd Disease **Alan J. Lewis**	Cytokine Networks in the Body **Matthew J. Kluger**
	Mechanisms of Cytokine Regulation **Gordon W. Duff**	Poster Sessions and Panel Discussion of Posters	Inhibitors of the Actions of Cytokines **Ivan G. Otteerness**
	Evening Posters	Workshop: Measurement of Cytokines in Tissues and Fluids **Joe Cannon**	Social Evening and Mixer
		Banquet and Entertainment	

APS Conference

Mechanotransduction and the Regulation of Growth and Differentiation

October 5–8, 1994
Sarasota, Florida

Wednesday, October 5	Thursday, October 6	Friday, October 7	Saturday, October 8
Evening Lecture: Historical Perspective Regarding Studies into Mechanotransduction **A. James Hudspeth** (U Texas Med Sch)	Musculoskeletal Responses to Mechanical Stimuli **Herman Vandenburgh** (Brown U) Participants: **Radovan Zak** (U Chicago), **Kenneth Baldwin** (U California, Irvine), **Frank Booth** (U Texas Med Sch,) **E. Berger** (Vrije U, Amsterdam), and **D. B. Jones** (U Munster, Germany)	Cardiovascular Adaptations to Mechanical Stimuli I **Peter F. Davies** (U Chicago) Participants: **Lowell Langille** (U Toronto), **Peter F. Davies** (U Chicago), **Rudi Busse** (U Freiburg, Germany), **Scott Diamond** (SUNY, Buffalo), and **Bauer Sumpio** (Yale U)	Mechanisms of Mechanochemical Signal Transduction **Fred Sachs** (SUNY, Buffalo) and **Peter A. Watson** (Weis Ctr Res/Geisinger Clin) Participants: **Herman Vandenburgh** (Brown U), **Peter A. Watson** (Weis Ctr Res & Geisinger Clin), **Jeffrey Lansman** (UCSF), **Boris Martinac** (U Wisconsin), and **Wade Sigurdson** (SUNY, Buffalo)
	Pulmonary Responses to Mechanical Stimuli **D. Eugene Rannels** (Penn State) Participants: **Robert Mercer** (Duke U), **D. Eugene Rannels** (Penn State), **Scott Randell** (Duke U), **John Shannon** (Natl Jewish Ctr Immunol/Resp Med, Denver), and **Leland G. Dobbs** (UCSF)	Cardiovascular Adaptations to Mechanical Stimuli II **Howard E. Morgan** (Weis Ctr Res & Geisinger Clin) Participants: **Howard E. Morgan** (Weis Ctr Res & Geisinger Clin), **Yoshio Yazaki** (U Tokyo), **Kenneth R. Chien** (UCSD), **George Cooper** (U South Carolina), and **David Warshaw** (U Vermont)	Regulation of Cell Shape and Function by the Extracellular Matrix **Martin A. Schwartz** (Scripps Res Inst) Participants: **Donald Ingber** (Harvard U), **Richard Hynes** (MIT), **Martin A. Schwartz** (Scripps Res Inst), **Zena Werb** (UCSF), and **Steven Farmer** (Boston U)
			Evening Lecture: Complex Signal Transduction Crosstalk Involved in the Molecular Mechanisms of Memory **Eric R. Kandel** (Columbia U Col P&S)

American Physiological Society
Intersociety Meeting

Regulation, Integration, Adaptation: A Species Approach

October 29–November 2, 1994
San Diego, California

This intersociety meeting is being hosted by the Comparative Section of APS with the sponsorship and participation of the American Society of Zoologists (Comparative Physiology and Biochemistry Section), the Canadian Society of Zoologists (Comparative Physiology and Biochemistry Section), The Society for Experimental Biology (UK), and the German Society of Zoologists.

The meeting plan features a plenary lecture each morning, followed by symposia. Afternoons will be devoted to contributed poster sessions, workshops, and debates. Each day will conclude with an evening plenary lecture. A banquet is planned for the final evening. The Scholander Award, sponsored by the APS Comparative Section, will be presented at this banquet.

Plenary speakers include A. Bennett, B. Block, J. Diamond, P. W. Hochachka, (Scholander Award Lecture), M. Koehl, L. Riddiford, C. R. Taylor, and G. Somero.

Programmed symposia will include

Excretory End Products of Nitrogen Metabolism
Biomedical Applications of Marine Mammal Physiology: Adaptation to an Aquatic World
From Myxine to Man: The Physiology of Blood Volume Regulation
The Evolution of Endothermic Metabolism
Calcium Regulation: Mechanisms and Control
Comparative Respiratory Neurobiology
Anhydrobiosis
Adaptations to Extreme Environments
Advances in Amphibian and Reptilian Osmoregulation
Ontogeny of Cardiovascular Systems
Subzero Temperature Adaptations of Poikilothermic Organisms
Contributions of Comparative Physiology to Systemic Physiology and Theoretical Biology
Adaptation to Hypoxia
Environmental and Physiological Determinants of Muscle Performance Capacities
New Insights into the Function of the Vertebrate Kidney: Lessons from Jawless, Cartilaginous and Bony Fish

Topics for afternoon discussion and workshops include

Phylogenetic Approaches in Comparative Physiology
Evolutionary Design of Functional Capacities: How Much is Enough but not too Much?
Kinetics and Limitations of Intracellular pH Regulation

APS Conferences

For the past several years, the American Physiological Society has been transforming its fall meeting from one encompassing all aspects of physiology to one embracing a clearly defined theme or topic. Culmination of that transition has been the scheduling of the APS Conferences for 1993–1995 (see p. 96, 101).

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

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 Heinz Valtin, Chairperson, APS Program Committee, or Martin Frank at the APS office. The deadline for proposals to be considered for 1995 is **February 1, 1994**.

Guidelines

Scope

These meetings should focus on a circumscribed area of physiology that attracts a limited (300–500) audience. A concerted effort should be made to integrate overlapping fields of study and levels of investigation, i.e., from molecular biology through systemic physiology.

Organizing Committee

The Program Committee should provide direction by identifying select persons, groups, or perhaps Sections and requesting them to organize a specialty meeting. The "organizing committee" will be responsible for providing APS with 1) a list of potential meeting sites, 2) contacts from other societies who may wish to attend or participate in the meeting, 3) potential outside funding, and 4) a budget detailing the cost of the meeting.

Management

The APS staff will be responsible for booking site selection, advertisement, setting the registration fee, attracting exhibitors if desired, and solicitation of supporting funds.

Abstracts

Inclusion of volunteered papers on the program is desired. There should be a format that provides graduate and postdoctoral students the opportunity to present their data if the material falls within the scope of the conference. Abstracts will be accepted without evaluation and published by the Society. The organizing committee will be responsible for generating a list of topic categories that fall within the scope of the APS Conference.

Location

The site of the meeting will be flexible. The Society requires at least two years advance notice of proposed meeting sites to book meeting space.

Duration

The meeting should be scheduled for two to three days, preferably over a weekend to take advantage of reduced travel costs.

Program Advisory Committee

The Program Committee will evaluate and contribute to the framework of the meeting. Once this has taken place, and the Program Committee has given its approval, the final content will be presented to Council for their endorsement and approval.

Joint Sponsorship

Joint sponsorship with other societies will be considered.

Number of Meetings

The number of meetings will depend on the needs of the membership. From 1992 through 1995, not more than two meetings per year will be sponsored by the Society.

Reimbursement Policy

Partial reimbursement for member and nonmember invited speaker expenses may be provided by the Society based on availability of funding.

Time of Year

The meetings should be scheduled from June through December to avoid overlap with preparations for the Experimental Biology meeting.

Membership

News From Senior Physiologists

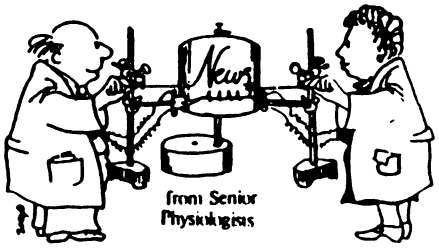
Letters to William H. Dantzler

Joseph R. DiPalma writes, reflecting on 50 years as an APS member: "Membership in the American Physiological Society has meant a great deal to me. My first paper before the Society was in 1941 at the Chicago meeting. The section meetings were small then and there was usually much discussion at the end of each paper. I remember L. N. Katz making favorable comments on my presentation—which was unusual for him as he was ordinarily quite critical.

"It has been my good fortune to have associated in some way with many of the outstanding physiologists of the past era. Among these are (or have been) Cliff Barger, a dear friend, Gene Landis, and S. R. M. Reynolds, who taught me some tricks of writing a good paper. C. J. Wiggers helped me with my first paper published in the Journal of the Society. I even had the pleasure of being advised by Walter Bradford Cannon when he was retired and was at New York University.

"Although I eventually concentrated in pharmacology, my first love has always been physiology. The present craze over molecular biology seems to overshadow general physiology. However, the molecular approach is only a small branch of the subject and eventually some balance will be established."

Harold C. Wiggers, noting that he is also a 50-year member of APS, writes: "I have always regarded it an honor and privilege to participate in the activities of this illustrious organization. Although my life as a physiologist was pushed to a low burner while serving as Dean and Executive Vice President of the Albany Medical College for 21 years (1953-1974), I have always retained a cardinal interest in the progress of physiology. I found it physically impossible, however, to find the time necessary away from my varied administrative responsibilities to keep au courant even in my chosen field of cardiovascular physiology.



"Severe problems seldom disappear—they just hibernate and reappear cyclically to obstruct progress. When my dad (Carl J. Wiggers) was president of the APS, animal research was harassed by anti-vivisectionists. They seem to be still barking and biting.

"I retired from Albany Medical College in 1974 but enjoyed an additional two and one-half years of experience as the "acting dean" and senior consultant to the new medical school that was developing at East Carolina University in Greenville. After 15 very delightful years of retirement in Vero Beach, FL, we returned to Greenville, NC—a delightful place to live—close to one daughter and family and 700 miles closer to another daughter in Voorheesville, NY."

Letters to Ralph H. Kellogg

John W. Severinghaus writes that in 1991, "I retired from UCSF, Department of Anesthesia, and the Cardiovascular Research Institute but am fortunate to have departmental permission to continue to occupy and use the same office and lab. Our recent and on-going work has included 1) confirmation of the suspected slow increase in hypoxic chemosensitivity over a few weeks at high altitude; 2) demonstration of a comparable increase in sensitivity of cerebral blood flow to hypoxia with time at altitude; 3) identification of the chemoreceptor cells near the ventral medullary surface stimulated by very high P_{CO_2}, using the oncogene c-fos; 4) demonstration of vigorous acid secretion by these cells or cells intimately related to them in response to hypoxia; 5) tests of pulmonary function during exercise at high altitude in a collaborative study with Peter Wagner of UCSD, looking for shunts in high altitude pulmonary edema. In lieu of NIH funding, I generate funds for our Anesthesia Research Foundation by testing pulse oximeters for manufacturers.

"My off-campus life has been divided between the American Physiological Society and the American Society of Anesthesiologists, attending both societies' meetings most of the time. The new fall meeting format exercise meeting organized by Peter Wagner last September was for me extremely productive in terms of new ideas about mitochondrial oxygen delivery, leading to a paper at the Lake

Louise Hypoxia Conference in February. I also have been partial to the Scandanavian Anesthesia Society meetings held every other year and will be going to Kuopio, Finland for the 1993 meeting as a keynote lecturer."

Severinghaus also keeps busy by biking and recently won a gold medal in Nastar slalom racing at Snowmass CO, "due in large measure, I believe, to the generous handicap awarded those over 70 and that my competitors were anesthesiologists."

Keith R. Porter writes that he is trying to enjoy a life without students. "It is not their physical absence that bothers me as much as the help they provided in organizing each day into a productive unit of time. There is some worth in the advice provided repeatedly by my colleagues: develop a hobby. As one's health deteriorates in the eighties it becomes essential to have an interest that totally occupies one's mind and time."

Report of the Senior Physiologists Committee

During the period of May 1992 through April 1993 the Senior Physiologist Committee members have corresponded with many emeritus members of the American Physiological Society. At the beginning of each calendar year, each member of the committee is assigned a section of the list of APS members who will be 70 or older during that year. We send notes and greetings to them near the dates of their 70th, 72nd, and 80th birthdays. We hope they will reply with news about their activities and reflections, which can by published in *The Physiologist.*

The response to our notes is quite variable. During the period covered by this report, the 31 letters we received were published in the "News From Senior Physiologists" section of *The Physiologist.* It is most gratifying that those seniors who do send letters are very much pleased to be greeted by the Society. We enjoy learning of their continued interest in physiology and in a variety of new activities.

The members of the committee have also reviewed five applications for grants to the G. Edgar Folk, Jr., Senior Physiologist Fund. Three of them were approved. Support is provided for such purposes as attending a meeting, engaging in modest experiments, or completing a manuscript. Names of awardees are not made public.

At the end of 1992, Horace Davenport retired from the committee after faithfully corresponding with many senior physiologists during several terms of office. In early 1993, we were sorry to hear of the death of A. Pharo Gagge. Newly appointed members are Robert Grover and Carl Gottschalk. Steven Horvath, Ralph Kellogg, John Reeves, and Helen Tepperman are continuing.

The committee wishes to thank Martin Frank for his help and guidance, which makes our task a pleasant experience

Helen Tepperman, Chair

G. Edgar Folk, Jr., Senior Physiologist Fund

The G. Edgar Folk, Jr., Senior Physiologist Fund has been set up through the generosity of family and former graduate students and postdocs to provide modest but helpful assistance to senior physiologists 70 years or older who no longer have grant funds available to them. The awards 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."

Inquiries concerning the G. Edgar Folk, Jr., Senior Physiologist Fund should be made to Martin Frank, Executive Director, APS.

Membership Status

March 1993	
Regular	4,909
Emeritus	807
Honorary	28
Corresponding	350
Associate	768
Student	499
Associate Corresponding	52
Total	7,413

Newly Elected Members

The following were elected to membership in the Society by Council at its 1993 Spring Meeting, New Orleans, LA.

Honorary

Knut Aukland
University of Bergen

Ivan Assenmacher
University of Montpellier

Etienne E. Baulier
University of Paris-Sud

Christopher C. Michel
St. Mary's Hospital Medical School, London

Regular

Eugenie J. Barrett
University of Virginia

Nancy J. Berner
University of the South

Morris J. Birnbaum
Harvard Medical School

Marilyn A. Brandt
Procter and Gamble Pharmaceuticals

Josie P. Briggs
University of Michigan

Richardo A. Brown
Wayne State University

David P. Carlton
University of Utah

Anthony C.-S. Chao
Stanford University

Zibin Chen
University of North Carolina

Carol-Ann M. Courneya
University of British Columbia

Pieter P. de Tombe
Bowman Gray School of Medicine

William R. Drucker
Uniformed Services University

William P. Dubinsky
University of Texas, Houston

David H. Eidelman
McGill University

Farouk M. F. El-Sabban
United Arab Emirates University

David A. Essig
University of South Carolina

Gregory L. Florant
Temple University

Robert E. Garfield
University of Texas, Galveston

Gordon G. Giesbrecht
University of Manitoba

Even R. Geller
SUNY, Stony Brook

Patrice G. Guyenet
University of Virginia

Andrea R. Gwosdow
Massachusetts General Hospital

Penelope A. Hansen
Memorial University

Johnson Haynes, Jr.
University of South Alabama

Peter Igarashi
Yale University

Sadayoshi Ito
Henry Ford Hospital

Cynthia A. Jackson
University of California, San Diego

Marilyn R. James-Kracke
University of Missouri

H. Ronald Kaback
University of California, Los Angeles

Stephen A. Kempson
Indiana University

Evangelia G. Kranias
University of Cincinnati

Johanna K. Krontiris-Litowitz
Youngstown State University

Ramon R. Latorre
University of Chile

John J. Lemasters
University of North Carolina, Chapel Hill

Yong F. Li
University of Texas, Houston

Edward L. Livingston
University of California, Los Angeles

Gary M. Mawe
University of Vermont

Irvin Mayers
Royal University Hospital

Orson W. Moe
University of Texas Southwestern, Dallas

Timothy H. Moran
Johns Hopkins University

John N. Mugaas
West Virginia School of Osteopathic Medicine

Kenneth A. Nagy
University of California, Los Angeles

W. James Nelson
Stanford University

William T. Norfleet
University of Texas, Galveston

Alfred L. Nuttall
Kresge Hearing Research Institute

Leann Olansky
Oklahoma University

Eben H. Oldmixon
Memorial Hospital of Rhode Island

Jeffrey Paul
American Cyanamid Company

Donald S. Prough
University of Texas, Galveston

Gregory J. Redding
University of Washington

Evelyn Dona Rider
Harbor-UCLA, Torrance

William P. Schilling
Baylor College of Medicine

Gary J. Schwartz
Johns Hopkins University

Michael F. Sheets
Northwestern University

Lelan F. Sillin
SUNY, Syracuse

Susan F. Silverton
University of Pennsylvania

David C. Spray
Albert Einstein College of Medicine

Assad M. Taha
Medical College of Ohio

Guido A. Ulate
University of Costa Rica

Sergei P. von Duvillard
University of Illinois, Chicago

Anthony S. Wexler
University of Delaware

L. Britt Wilson
University of Texas Southwestern, Dallas

Phyllis M. Wise
University of Maryland

Nobuharu Yamaguchi
University of Montreal

Bradley A. Zinker
Vanderbilt School of Medicine

Andrew C. Zygmunt
Masonic Medical Research Laboratory

Corresponding

Roman I. Aizman
University of California, Davis

Peter Bartsch
Ruprecht-Karls University

Said Benlamlih
Rabat Institute

Christian P. Burvenich
University of Gent

Hannelore Daniel
University of Giessen

Michel R. Feletou
Institute de Recherches Servier, Suresnes

Horst B. Fischer
University of California, Berkeley

M. M. Galhotra
Haryana Agricultural University

Yoko Ishihara
Tokyo Women's Medical College

Jun Iwamoto
SUNY, Buffalo

Christopher J. H. Jones
University of Wales

Frank J. Kelly
The Rayne Institute

Erik H. Larsen
University of Copenhagen

Jorgen S. Petersen
University of Iowa

Long Qu
University of Texas, San Antonio

Jacques B. Rami
Hospital of Toulouse

Balazs Sarkadi
National Institute of Hematology, Immunology and Blood Transfusion

Nestor Schor
Escola Paulista de Medicina, Sao Paulo

Steven A. Shea
Harvard School of Public Health

Ole Skott
The Panum Institute

Eric J. Tschirhart
Marion Merrell Dow Research Institute

Norimasa Yoshida
Kyoto Prefectural University

Associate

Harry L. Anderson III
University of Michigan

Robert F. Appleyard
Brigham and Women's Hospital

Bernard R. Boulanger
University of Toronto

Joseph T. Brozinick
National Institutes of Health

John R. Charpie
University of Michigan

Catherine L. Coulter
University of California, San Francisco

Abe DeAnda
Stanford Medical Center

Chris Doumen
Milton S. Hershey Medical Center

Emily C. Johnson
University of California, San Diego

Nancy L. Kanagy
University of Michigan

Anibal G. Lopes
University of Sao Paulo

Richard M. McAllister
University of Missouri

John N. Mugaas
West Virginia School of Osteopathic Medicine

Yi Pan
Harvard Medical School

Raymond P. Quigley
University of Texas Southwestern, Dallas

James C. Scott
University of New Mexico

Janet E. Steele
Medical College of Ohio

Gail D. Thomas
University of Texas Southwestern, Dallas

Stuart K. Ware
University of Kentucky

Stephanie W. Watts
University of Michigan

Christopher J. Wingard
University of Virginia

Associate Corresponding

Ahmmed Ally
University of Texas Southwestern, Dallas

Ayse Dogan
University of Cukurova

Jin S. Han
Seoul National University

Bengt E.J. Kayser
University of Geneva

Kay-Pong Yip
University of Southern California

Jian X. Zhang
Johns Hopkins University

Student

John W. Adams
University of California, Los Angeles

Luiz G.S. Branco
University of Sao Paulo

Patrick H. Campbell
Louisiana State University

Ethan P. Carter
University of Minnesota

Chao-Yin Chen
Northeastern Ohio Universities

Meng Chen
Medical College of Pennsylvania

Camala C. Cline
Texas A&M University

Heidi L. Collins
Northeastern Ohio Universities

Christian A. Combs
Florida State University

Gerard D. D'Angelo
University of Vermont

Dina N. Durham
Howard University

Michael J. Ebaugh
University of Texas, Galveston

Mathew M. Edavettal
Louisiana State University

Jodi A. Flaws
University of Arizona

Christopher G. Gaposchkin
Boston University

Christina D. Gayer
Washington State University

Cara A. Geary
University of North Carolina, Chapel Hill

Gregory M. Grabowski
Medical University of South Carolina

Yi Guo
University of Minnesota

Andrew J. Halayko
University of Manitoba

John R. Halliwill
McGuire V.A. Medical Center

A.Z.M. Arif Hasan
Louisiana State University

Dingsheng He
University of Arizona

Robert A. Herb
University of Florida

James B. Hoying
University of Arizona

Yi Huang
University of Arizona

Anil K. Jain
Howard University

Friederike L. Jayes
North Carolina State University

Sheree' M. Johnson
Howard University

Jie Kang
University of Pittsburgh

Stephen T. Kinsey
Florida State University

Donna H. Korzick
Pennsylvania State University

Andrew P. Krivoshik
University of Illinois

Kent E. LaGasse
University of Connecticut

Robert A. Lindberg
University of Louisville

Dwight W.G. Littleford
University of Oklahoma

Kelly M. Mack
Howard University

Lisa C. Mangino
Pennsylvania State University

David T. Martin
University of Wyoming

Michael P. Massett
University of Arizona

Karen D. May-Newman
University of California, San Diego

Harrison McDonald, Jr.
Howard University

Lynn A. Megeney
University of Waterloo

Andrew J. Messaros
University of Arizona

Christopher T. Minson
San Diego State University

Anastas P. Nenov
Louisiana State University

Jacqueline Novak
University of Cincinnati

Lillian Novela
University of Missouri, Dalton Research Center

Rudy M. Ortiz
Texas A&M University

Anthony T. Paganini
Michigan State University

Alice E. Pearson
University of Minnesota

Carolyn L. Preston
University of Texas, Houston

Ruth I. Quartey
Howard University

Michael A. Reutter
University of Florida

Leslie S. Ritter
Arizona Health Sciences Center

Maria Rivera-Correa
University of Puerto Rico

Melinda L. Ryan
University of Wisconsin, Madison

Ann Marie Schreihofer
University of Pittsburgh

Niu Shi
University of Arizona

Heather G. Silverman
University of Colorado

Daniel L. Small
Ottawa Civic Hospital

Gregory S. S. Smith
University of Texas, Houston

Lisa N. Springer
University of Arizona

Leslie K. Sprunger
University of Minnesota

Michael A. Statnick
Southern Illinois University

Edith T. Stevenson
University of Colorado

Christopher L. Taylor
University of Cincinnati

Mechelle E. Taylor
Meharry Medical College

Lynn Toohey
Colorado State University

Matthew D. Vukovich
Ball State University

Marlei Walton
University of Texas Southwestern

Sandra W. Watson
Howard University

Donald G. Welsh
University of Guelph

Hosook Yang
Cornell University

Robert J. Zachow
University of Kansas

Fifty-Year Members

David I. Abramson, 1937
Harry F. Adler, 1943
Errett C. Albritton, 1933
Willard M. Allen, 1934
Donald H. Barron, 1943 (Regular)
Samuel B. Barker, 1938
Lyle V. Beck, 1941
A. Lawrence Bennett, 1941
Karl H. Beyer, 1941 (Regular)
Richard J. Bing, 1922
Edgar J. Boell, 1942
Harry D. Bouman, 1943
Emil Bozler, 1932
Frank Brink, 1942
John R. Brobeck, 1943
Carl A. Bunde, 1939
Howard B. Burchell, 1942
James Campbell, 1943
James W. Campbell, 1943 (Regular)
Hubert R. Catchpole, 1938
Aurin M. Chase, 1939
Herbert Chasis, 1941
Charles F. Code, 1939
Samuel A. Corson, 1943
Madeleine F. Crawford, 1933
Ray G. Daggs, 1935
Horace W. Davenport, 1942
Joseph R. DiPalma, 1943
Robert S. Dow, 1940
G. Harold Ettinger, 1943
Louis B. Flexner, 1933
Florent E. Franke, 1934
M. H. F. Friedman, 1941
A. Pharo Gagge, 1937 (Regular)
Robert Galambox, 1942
Robert Gaunt, 1939
Anthony J. Glazko, 1942
Anna Goldfeder, 1940
Harold D. Greene, 1936
Roy O. Greep, 1940
A. Sidney Harris, 1939
Frank Harrison, 1941
Joseph E. Hawkins, 1943
Lovic P. Herrington, 1942
Edwin P. Hiatt, 1942
Joseph P. Holt, 1942
Steven M. Horvath, 1943 (Regular)
Charles B. Huggins, 1932 (Regular)
Louis B. Jaques, 1943
Herbert H. Jasper, 1940
Frederic T. Jung, 1930
Herman Kabat, 1941
Ancel Keys, 1939
Nathaniel Kleitman, 1923
Robert A. Kehoe, 1940
Walter Kempner, 1940 (Regular)
Charles D. Kochakian, 1942
Henry I. Kohn, 1940
Irvin M. Korr, 1939
Martin G. Larrabee, 1940
Paul S. Larson, 1939
Rachmiel Levine, 1942
Benjamin Libet, 1942
Donald B. Lindsley, 1937
Rafael Lorente de No, 1937
George L. Maison, 1939
Noble S.R. Maluf, 1942
Ade T. Milhorat, 1934
Hayden C. Nicholson, 1932
Seward E. Owen, 1938
Elizabeth Painter-Marcus, 1941
Ernest A. Pinson, 1943
C. Ladd Prosser, 1935
Nathan Rakieten, 1941
Walter C. Randall, 1943 (Regular)
Milton J. Schiffrin, 1941
Francis O. Schmitt, 1930
Gordon M. Schoepfle, 1943
William W. Scott, 1943
James A. Shannon, 1933 (Regular)
Herbert Silvette, 1933
Paul W. Smith, 1933
Heinz Specht, 1941
J. Newell Stannard, 1938
Theodore J.B. Steir, 1938
Eugene U. Still, 1928
George W. Thorn, 1939
Richard F. Tislow, 1941
Louis A. Toth, 1940
Everett G. Weir, 1941
C. Beecher Weld, 1936
Harold C. Wiggers, 1937 (Regular)
Herman S. Wigodsky, 1943 (Regular)
Henry J. Wills, 1943
Charles A. Winter, 1940
Earl H. Wood, 1943
Robert A. Woodbury, 1936
William B. Youmans, 1939

Deceased Members

J. Garrott Allen, Stanford, CA
David Bodian, Baltimore, MD
Robert H. Broh-Kahn, Málaga, Spain
Paul C. Bucy, Tryon, NC
John Butler, Seattle, WA
Robert P. Cornell, Kirksville, MO
Frederick Crescitelli, Los Angeles, CA
Hallowell Davis, St. Louis, MO
Ludwig A. Engel, Australia
John W. Everett, Durham, NC
Edith G. Fry, New Haven, CT
Albert S. Gordon, New York, NY
Roderic A. Gregory, Liverpool, UK
James B. Hamilton, Brooklyn, NY
James T. Irving, Manchester, MA
Dudley P. Jackson, Washington, DC
Frederick F. Kao, Hempstead, NY
John P. Koepke, St. Louis, MO
Frances Kraft-Hunter, Washington, DC
Howard P. Krieger, Seattle, WA
Jeanne O. Lilley, Baltimore, MD
Jean Mayer, Boston, MA
William L. McGuire, San Antonio, TX
Gordon J. Mogenson, London, Ontario
Giuseppe Moruzzi, Pisa, Italy
Clifford V. Nelson, Gorham, ME
Joseph V. Princiotto, McLean, VA
Freeman H. Quimby, Silver Spring, MD
John G. H. Rankin, Madison, WI
Richard Recknagel, Cleveland, OH
Walter Redisch, New York, NY
Donald W. Rennie, East Amherst, NY
Charlotte A. Schneyer, Birmingham, AL
Ewald Selkurt, Indianapolis, IN
Aaron B. Shaffer, Chicago, IL
Herbert Shapiro, Philadelphia, PA
Miriam E. Simpson, San Francisco, CA
Franklin F. Snyder, Newton Center, MA
Sidney Solomon, Albuquerque, NM
Theodore H. Spaet, Scarsdale, NY
George H. Stabenfeldt, Davis, CA
George W. Stavraky, London, Ontario
Torsten A. Teorell, Uppsala, Sweden
James G. Walmsley, Rockford, IL
Clinton Woolsey, Madison, WI

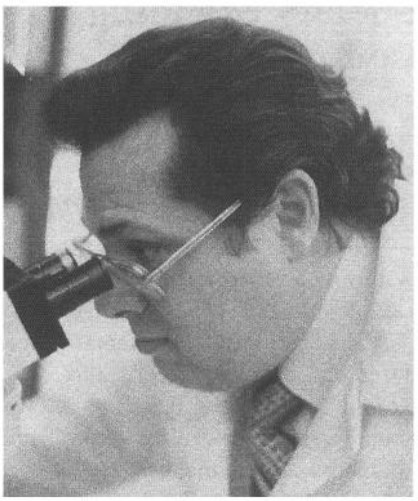
Publications

Introducing . . .

Harris J. Granger

Harris J. Granger, Professor and Head of the Department of Medical Physiology and Director of the Microcirculation Research Institute at the College of Medicine, Texas A & M University, became editor of the *American Journal of Physiology: Heart and Circulatory Physiology* on January 1, 1993. Granger was born in Abbeville, Louisiana, and received his BS degree in Microbiology from the University of Southwestern Louisiana, Lafayette, Louisiana, in 1966. He received his PhD degree in 1970 from the Department of Physiology and Biophysics at the University of Mississippi Medical Center in Jackson, Mississippi. After serving on the faculty of the Department of Physiology and Biophysics at the University of Mississippi Medical Center, Granger moved to the Department of Medical Physiology at Texas A & M in 1976. He became Director of the Microcirculation Research Institute in 1981 and Head of the Department of Medical Physiology in 1982.

Granger's unique ability to combine sophisticated experimental approaches with theoretical analysis of physiological problems and his keen insight into important scientific questions has enabled him to make numerous contributions to the understanding of the function of the peripheral circulation, fluid exchange in the microcirculation, metabolic and myogenic autoregulation of blood flow, the function of the lymphatic vessels, and the function of microvascular endothelial cells.



In addition to his research accomplishments, Granger is highly respected as an educator, as evidenced by his receipt of the Best Lecturer Award from the Freshman Medical Class at Texas A & M and by the exceptional list of predoctoral and postdoctoral trainees emerging from his laboratory. He is also a tireless contributor to his profession, as evidenced by his service on numerous editorial boards and study sections.

Granger has been continuously funded since 1970 and is the recipient of a MERIT award from the National Heart, Lung, and Blood Institute. He has received numerous other awards, including the Eugene M. Landis Award, which is the highest award of the Microcirculatory Society.

Granger outlined his plans for the journal in an editorial that appeared in the July issue of the *American Journal of Physiology: Heart and Circulatory Physiology*. With his new team of Associate Editors (Kathleen H. Berecek, William M. Chilian, James E. Faber, Joseph R. Hume, Gerald A. Meininger, Geert W. Schmid-Schonbein, Michael Schneider, R. John Solaro, and Michael S. Wolin), he intends to develop the journal into the premiere international forum for basic cardiovascular biology. In evaluating submitted manuscripts, reviewers will give prime consideration to the originality of the proposed hypothesis with respect to the field of cardiovascular physiology and to the strength of the experimentation used to test the hypothesis.

Another major objective is to expand the number of reviewers by asking readers to submit the names of young investigators at the assistant professor (or equivalent) level who could act as reviewers, including young investigators from foreign countries. Beginning in July the table of contents of the journal is being divided into three sections: cardiac physiology, vascular physiology, and integrative cardiovascular physiology. Within each section papers are arranged from simple to intermediate and complex levels of functional organization. Granger hopes that this revamping of the table of contents will allow readers to easily locate papers relevant to their own interests, attract the attention of scientists in the broader biomedical community, and provide a public accounting of how well the journal is meeting its objective of providing broad coverage of the cardiovascular field.

Committees and Reports

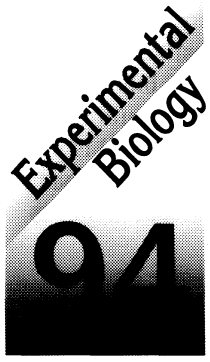
1993 Officers and Standing Committees

APS Council

Officers
William H. Dantzler, President (1994)
Brian R. Duling, President-Elect (1994)
Stanley G. Schultz, Past President (1994)

Councillors
Mordecai P. Blaustein (1995)
Helen J. Cooke (1994)
D. Neil Granger (1996)
Barbara A. Horwitz (1996)
L. Gabriel Navar (1994)
James A. Schafer (1995)

ex officio members
Franklyn G. Knox, Finance (1994)
Leonard S. Jefferson, Section Advisory (1993)
Frank L. Powell, Jr., Education (1994)
Leonard R. Johnson, Publications (1995)
Heinz Valtin, Program (1994)



Society Standing Committees

Animal Care and Experimentation

Maintains and updates the APS "Guiding Principles in the Care and Use of Animals"; provides consultation regarding animal experimental procedures and care; and keeps abreast of legislation and new developments in animal models for student teaching and alternatives for animal usage.
Joseph R. Haywood, Chair (1994)
Kenneth M. Baldwin (1993)
Charles W. Leffler (1993)
Jeffrey L. Osborn (1995)
Thomas V. Peterson (1995)
Charles E. Wade (1994)
Stephen F. Flaim, *ex officio* (1993)
Gabor Kaley, *ex officio* (1993)
Alice Hellerstein, *ex officio* (indefinite)

Career Opportunities in Physiology

Provides Council with information regarding availability and needs for appropriately trained physiological personnel and recommends measures to assure appropriate balance in the supply and demand for physiologists.

Mary Anne Frey, Chair (1993)
Stephen L. Bealer (1994)
R. Allan Buchholz (1995)
Ronald R. Geller (1993)
Joey P. Granger (1995)
Susan J. Gunst (1994)
Mary Anne Rokitka (1994)
Barbara A. Horwitz, *ex officio* Education (1995)

Committee on Committees

Serves as an advisory committee to Council to make recommendations for nominees to the standing committees and reviews charges of the various committees regarding overlapping responsibilites.

Helen J. Cooke, Chair (1994)
Mordecai P. Blaustein (1995)
Stephen M. Cain (1993)
Catherine S. Chew (1994)
David C. Dawson (1995)
M. Roger Fedde (1994)
Ronald H. Freeman (1995)
John T. Stitt (1993)

Ray G. Daggs Award

Annually selects a member of the Society to receive this award in recognition of distinguished service to APS and to the science of physiology.

A. Clifford Barger, Chair (1993)
Arthur C. Guyton (1994)
X. J. Musacchia (1995)

Education

Provides leadership and guidance in the area of physiology education of undergraduate, graduate, and professional students; recommends objectives for the graduate programs in physiology; and organizes workshops on the application of new techniques in physiological problems.

Frank L. Powell, Jr., Chair (1994)
Francis L. Belloni (1993)
Jack A. Boulant (1994)
Aviad Haramati (1995)
Barbara A. Horwitz (1993)
Lynne E. Olson (1993)
Norman W. Weisbrodt (1995)
Carol F. Whitfield (1994)
Roger E. Thies, *ex officio*, Teaching of Physiology Section (1996)
Penny Hansen, *ex officio*, Editor, *Advances in Physiology Teaching* (1995)

Finance

Reviews the proposed annual budget and fiscal plan for all Society activities and recommends a final budget and implementation plan to Council. Supervises the investment of the Society's financial resources subject to approval of Council.

Franklyn G. Knox, Chair (1994)
Robert W. Gore (1994)
M. Ian Phillips (1993)
Brian R. Duling, *ex officio* (1994)
Leonard R. Johnson, *ex officio* (1995)
Martin Frank, *ex officio* (indefinite)
James C. Liakos, *ex officio* (indefinite)

Honorary Membership

Recommends to Council candidates for nomination to honorary membership—distinguished scientists who have contributed to the advancement of physiology.

Aubrey E. Taylor, Chair (1993)
Francis J. Haddy (1995)
Ernst Knobil (1994)

International Physiology

Facilitates interchange between APS, other physiological societies, and their individual members; handles all matters pertaining to international physiological affairs, with an emphasis on developing countires; maintains a clearinghouse for linkages with developing countries.

Donald B. Jennings, Chair (1993)
Emile L. J. B. Boulpaep (1994)
Marcelino Cereijido (1995)
Melvyn Lieberman (1995)
Daniel R. Richardson (1993)
John B. West (1993)
Clark M. Blatteis, *ex officio* (1993)
Bodil Schmidt-Nielsen, *ex officio* (1994)
Harvey V. Sparks, Jr., *ex officio* (1993)

Liaison With Industry

Fosters interactions and improved relations between the Society and industry; cooperates with the Career Opportunities in Physiology Committee to encourage high school and college students to choose a career in physiology.

Stephen F. Flaim, Chair (1993)
David P. Brooks (1993)
David L. Crandall (1994)
Michael J. Cronin (1993)
Steven S. Segal (1994)
Andrea A. Seymour (1994)
Mary Anne Frey, *ex officio* (1993)
Frank L. Powell, Jr., *ex officio* (1994)
Heinz Valtin, *ex officio* (1994)

Long-Range Planning

Advises and reports annually to Council and interacts with the Section Advisory Committee; prepares systematic, periodic analyses and realistic assessments of past and present Societal performance and accomplishments; conducts review of the Society's relationships with other organizations; and devises specific goals and objectives pertinent to the future scientific mission of APS and American physiology. Reviews the progress of the Strategic Plan annually, conducts studies as assigned by Council, and prepares proposals.

Francis J. Haddy, Chair (1993)
Clark M. Blatteis (1994)
Walter F. Boron (1995)
J. Jay Gargus (1994)
John E. Hall (1993)
Donald J. Marsh (1993)
Patricia J. Metting (1995)
David J. Ramsay (1993)

Membership

Considers all matters pertaining to membership; reviews and evaluates applications received from candidates for membership and recommends to Council the nominees for election to regular and corresponding membership.

Diana Marver, Chair (1994)
Jahar Bhattacharya (1993)
Michael J. Davis (1994)
Suzanne M. Fortney (1993)
Jay A. Nadel (1993)
Jack A. Rall (1995)
Nancy K. Wills (1995)

Perkins Memorial Fellowship

Selects recipients for visiting scientist family support awards and supervises the administration of the Perkins Funds.

Bodil Schmidt-Nielsen, Chair (1994)
Robert W. Berliner (1995)
Jerome A. Dempsey (1994)
Arthur B. Otis (1995)
Molly P. Hauck, *ex officio* (indefinite)

Porter Physiology Development

Selects recipients for visiting scientists and professorships; teaching and training fellowships, aimed at improving physiological departments of medical schools with predominately minority enrollments. Counsels underdeveloped physiology departments; assists in the selection of NIDDK minority fellowship awards; and supervises the administration of the Porter Fund.

H. Maurice Goodman, CoChair (1995)
Eleanor L. Ison-Franklin, CoChair (1993)
Douglas C. Eaton (1993)
Richard M. Effros (1993)
Reynoldo Elizondo (1994)
Pamela J. Gunter-Smith (1993)
Phillip L. Rayford (1995)
David Robertshaw (1994)
Fleur L. Strand (1993)
James G. Townsel (1994)
Martin Frank, *ex officio* (independent)

Program

Develops the scientific programs for the Society with the assistance of the Program Advisory Committee; assists Council in shaping policy for sci-

entific programs and in the organization of fall conferences.

Heinz Valtin, Chair (1994)
Larry I. Crawshaw (1993)
Elaine K. Gallin (1995)
Michael P. Hlastala (1995)
Ethan R. Nadel (1994)
Albert P. Shepherd (1994)
Brian R. Duling, *ex officio* (1994)
Martin Frank, *ex officio* (indefinite)

Program Advisory

Recommends to the Program Committee scientific programs for the APS meetings and conferences; organizes contributed abstracts into sessions; selects session chairs and introductory speakers.

Chair—Heinz Valtin (1994)
Cardiovascular—Diana L. Kunze (1994) & Frank C.-P. Yin (1996)
Cell and General Physiology—Jack H. Kaplan (1996)
Central Nervous System—Celia D. Sladek (1995)
Comparative Physiology—Stephen H. Wright (1994)
Endocrinology and Metabolism—Jessica Schwartz (1995)
Environmental and Exercise Physiology—Charles M. Tipton (1996)
Gastrointestinal Physiology—Patrick Tso (1997)
Neural Control and Autonomic Regulation—Eileen M. Hasser (1996)
Renal Physiology—Bruce A. Stanton (1995) & Leon Moore (1996)
Respiration Physiology—Aron B. Fisher (1994)
Teaching of Physiology—Philip A. McHale (1994)
Water and Electrolyte Homeostasis—Ian A. Reid (1995)
Clinical Physiology Group—Richard J. Traystman (1995)
Epithelial Transport Group—John Cuppoletti (1995)
History of Physiology Group—Giuseppe Sant'Ambrogio (1994)
Hypoxia Group—Reed W. Hoyt (1996)
Myo-Bio Group—Jack A. Rall (1993)
Liaison with Industry—Stephen F. Flaim (1993)
Education Committee—Frank L. Powell, Jr. (1994)

Public Affairs

Advises Council on all matters pertaining to public affairs that affect physiologists and implements public affairs activities in response to Council guidance.

Gabor Kaley, Chair (1993)
Eric O. Feigl (1994)
Virginia H. Huxley (1993)
Lazaro Mandel (1995)
Roger J. M. McCarter (1995)
George A. Ordway (1994)
Stephen F. Flaim, *ex officio* (1993)
Joseph R. Haywood, *ex officio* (1994)
Alice Hellerstein, *ex officio* (indefinite)

Publications

Manages all Society publications, including the appointment of editors and editorial boards; supervises the Book Advisory Committees (handbooks, technical, clinical series, and history) to ensure timely publication.

Leonard R. Johnson, Chair (1995)
Diana L. Kunze (1994)
Lorne Mendell (1995)
Loring B. Rowell (1993)
John A. Williams (1995)
William H. Dantlzer, *ex officio* (1994)
Martin Frank, *ex officio* (indefinite)
Brenda B. Rauner, *ex officio* (indefinite)

Section Advisory

Recommends to Council ways to strengthen the Sections' roles in programs, public affairs, and governance of the Society; serves as a Nominating Committee to nominate Society officers; nominates members as candidates for membership on Society committees.

Leonard S. Jefferson, Chair (1993)
Cardiovascular Section—James Covell (1994)
Cell and General Physiology Section—Melvyn Lieberman (1995)
Central Nervous System—Richard A. Hawkins (1994)
Comparative Physiology Section—Eldon J. Braun (1994)
Endocrinology and Metabolism Section—Charles Blake (1995)
Environmental and Exercise Physiology Section—Ethan R. Nadel (1994)
Gastrointestinal Physiology Section—Jack D. Wood (1994)
Neural Control and Autonomic Regulation Section—Cheryl M. Heesch (1996)
Renal Physiology Section—Roger G. O'Neil (1996)
Respiration Physiology Section—Edward D. Crandall (1996)
Teaching of Physiology Section—David S. Bruce (1996)
Water and Electrolyte Homeostasis Section—John E. Hall (1994)

Senior Physiologists

Maintains liaison with senior and emeritus members and assists in the selection of recipients of the G. Edgar Folk, Jr. Fund.

Helen M. Tepperman, Chair (1994)
Carl W. Gottschalk (1995)
Robert R. Grover (1995)
Steven M. Horvath (1995)
Ralph H. Kellogg (1994)
John. T. Reeves (1993)

Women in Physiology

Deals with all issues pertaining to education, employment, and professional opportunities for women in physiology. Develops programs to provide incentives enabling graduate students to present their research work at APS meetings; coordinates activities with other committees on women in the FASEB organization; administers the Caroline tum Suden Professional Opportunities Awards; and provides mentoring opportunities for members.

Hannah V. Carey, Chair (1993)
Virginia L. Brooks (1994)
Andrea R. Gwosdow (1993)
Cheryl M. Heesch (1995)
Kathryn F. LaNoue (1995)
John W. Manning (1993)
Barbara A. Vance (1993)
Susan A. Ward (1993)
Martin Frank, *ex officio* (indefinite)

Society Representatives to Other Organizations

American Association for Accreditation of Laboratory Animal Care

Joseph R. Haywood (1994)

American Association for the Advancement of Science

Peter W. Hochachka (1995)
Jack L. Kostyo (1995)

Council of Academic Societies of the Association of American Medical Colleges

William H. Dantzler (1995)
George A. Hedge (1993)

Federation of American Societies for Experimental Biology

Board
Brian R. Duling (1996)
Stanley G. Schultz (1995)

Executive Officers Advisory Committee
Martin Frank (indefinite)

Finance Committee
Norman P. Alpert (1995)

Excellence in Science Award
Brian R. Duling (1993)

Life Sciences Advisory Committee
Mordecai P. Blaustein (1994)

Public Affairs Committee
Gabor Kaley (1993)

Publications Committee
John A. Williams (1994)

Research Conference Advisory Committee
A. W. Cowley, Jr. (1996)

National Association for Biomedical Research

Martin Frank (indefinite)

US National Committee for IUPS

William H. Dantzler (1995)
Brian R. Duling (1996)
Stanely G. Schultz (1994)

US National Committee on Biomechanics

Roger M. Glaser (1993)

Animal Care and Experimentation

The Animal Care and Experimentation Committee (ACE) had a busy year. In January, Virginia Miller stepped down as chair, after spearheading a number of important initiatives.

Joseph R. Haywood

The new Sourcebook for the Use of Animals in Physiological Research and Training should be ready for distribution to the membership by mid-summer. The ACE Committee is also working with the Association of Chairmen of Departments of Physiology (ACDP) to revise the brochure Considerations for Medical Students Using Lab Animals.

The ACE Committee co-sponsored a symposium at Experimental Biology '93 with the ASPET Committee on the Care and Use of Research Animals (CCURA) entitled "Scientific Illiteracy: Impact on Research and What Can Be Done." A report on this symposium appears in this issue of *The Physiologist* (p. 81). Plans are underway for another joint symposium at Experimental Biology '94 in Anaheim.

During the year, the committee got involved in a number of issues relating to animal use. This included writing letters to encourage the government to appeal a federal court ruling that threw out substantial portions of the Animal Welfare Act regulations and to urge significant changes to proposed revisions of New York State's animal care rules. The committee is now planning to establish a rapid response network to disseminate information and activate letter writing campaigns

on urgent issues. The network would be reserved for occasional use on important matters, such as the ones just mentioned.

The ACE Committee is also looking into a number of educational ventures in cooperation with the APS Education Committee and others. The ACE Committee has discussed assembling educational materials about physiology and the use of animals in research that could be distributed to APS members who wish to visit local elementary and secondary schools. The committee also plans to collect examples of some of the more egregious animal rights materials that is making its way into the nation's schools. In addition, the committee is discussing development of a slide presentation, possibly in conjunction with other organizations, that would explain the overall importance of biomedical research to individuals and communities, presenting the role of animals in research within that context.

The committee communicated with a number of investigators who were harassed or threatened by animal rights activists during the past year. The ACE Committee is happy to provide support and assistance in that situation and welcomes input from the members of APS regarding concerns and issues related to the use of animals.

Joseph R. Haywood, Chair

Career Opportunities in Physiology

Currently the Career Opportunities in Physiology Committee has three major thrusts: a careers workshop at the Experimental Biology meetings, a program for APS members to talk in their communities about careers in physiology, and a poster to inform undergraduate students about physiology and to encourage outstanding science students to pursue a graduate program and career in physiology.

Mary Anne Frey

During the past year, the committee sponsored its third Careers Workshop at the Experimental Biology '93 meeting. This was very successful in presenting interesting speakers who described a range of career paths in physiology, in attracting a large audience of students and other, and in nurturing active interaction between the audience and the speakers.

The committee has discussed the needs and possible approaches for APS member outreach to the community, but because this is an endeavor that crosses the responsibilities of several committees, the Career Opportunities in Physiology Committee has taken no action thus far.

Designing a poster to attract undergraduate students has been our major activity this year. Between their many telecon meetings, members have performed individual assignments in the design and development of an attractive poster we think will get attention, show the breadth of activity that is physiology, and arouse the students' interest. We are currently working with Marsha Matyas, the APS Education Officer, to produce and distribute the poster, and we have submitted the design to the APS Council for approval.

In the future, 1) we plan to continue the workshop; 2) we have recommended that an intercommittee group be established to work on programs and material for APS members to use in talking with the community about careers, education, use of animals in research, etc.; and 3) we are proceeding with development of materials to be sent to individuals who respond to the poster and the production, distribution, and evaluation of the poster.

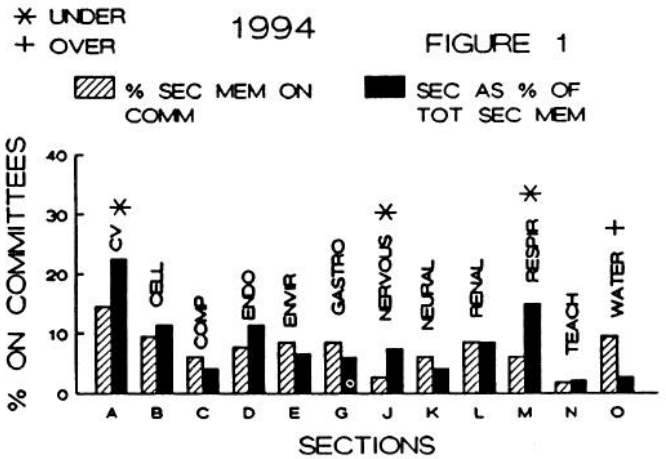
Mary Anne Frey, Chair

Committee on Committees

The Committee on Committees met on Sunday, March 28, 1993. The charges of the committee were to review charges of other APS committees, select nominees to fill vacancies, and to ensure adequate representation of sections, women, young investigators, and minorities. A slate of 48 nominees and 24 alternates were selected and submitted to Council for their approval. Included in the 48 nominees were 6 nominees for chairs of committees. The number of vacancies to be filled was greater this year because of an increase in the size of the Committee on Committees mandated by Council's action to reflect representation from each of the sections. The Committee on Committee has made a concerted effort to select qualified individuals with consideration of section representation, gender, age, and minority status. Projected number of appointments representing the sections were as follows: Cardiovascular (A), 4 appointments; Cell and General (B), 4; Comparative (C), 5; Endocrinology and Metabolism (D), 6; Environmental and Exercise (E), 3; Gastrointestinal (G), 3; Central Nervous System (J), 2; Neural Control and Autonomic Regulation (K), 4; Renal (L), 4; Respiration (M), 3; Teaching (N), 2; Water and Electrolyte (O), 4; and Undeclared, 4.

Helen J. Cooke

The projected appointments for 1994 are shown in Figure 1. The percentages of section members on committees



(striped bars) are compared with the percentages of section representation in the Society (filled bars). These percentages were based on 117 APS committee members and section membership of 4,355. There were approximately 1,229 members that did not declare a section, and these were not included in the calculations. Of the 1,229 undeclared members, 8 were appointeed to committees in 1994.

Despite conscientious efforts by the Committe on Committees to distribute appointments among the sections, the Central Nervous System and Respiration Sections continued to be underrepresented, and future committee assignments should take this into consideration to achieve balance of section representation. Likewise, the Water and Electrolyte Section continued to be well represented on the APS committees. Fewer appointments from the Cardiovascular Section were made in an attempt to distribute appointments to other sections, given the overrepresentation of this section prior to 1993.

Committee Representation by Gender

With respect to gender, there were 16 women appointed to committee vacancies, 2 to alternate vacancies, and 3 as chairs or co-chairs. Two women were appointed as APS representatives to FASEB committees. For 1994, 28% of the APS committee membership and 37% of the chairs of committees are women.

Committee Representation Under Age 40

There were 12 appointments made of individuals under the age of 40, 3 of these to chair positions. For 1994, 25% of the committee membership and 32% of the chairs of committees are young physiologists.

Minority Status of Committee Appointments

The minority status of committee membership was determined by checking a box on the Membership Records Questionnaire. For 1994, 9 new minority appointments were recommended, 1 of these as cochair. The total minority membership on APS committees for 1994 is 11%.

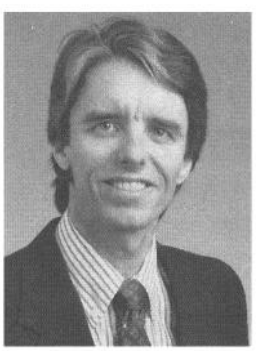
The Committee encourages all members of the Society to submit nominations that include the individual's expertise and qualifications. Self-nominations are encouraged as well. During the next year, the Committee on Committees will be processing nominations for 1995 and reviewing the charges of the Public Affairs Committee, International Committee, Women in Physiology Committee, and Membership Committee.

Helen J. Cooke, Chair

Education

The biggest news in education for APS this year is the hiring of a full-time Education Officer (*The Physiologist* 36: 6, 1993). Marsha Matyas comes to the APS from AAAS, where she directed the Women in Science Program. Already she has coauthored a grant proposal from APS on "Female Role Models in Science," which was submitted to the NSF. We look forward to working with her on future grant applications to expand APS science-education partnerships and programs aimed "down the pipeline" to K-12 levels.

To date our main activities in this area have centered around the APS High School Teacher Summer Research Program. Feedback from teachers indicates that initially finding an APS sponsor is the most difficult part of applying to the program, so we hope to encourage more APS members to actively seek teacher applicants for summer 1994. Twelve applicants have been selected for summer 1993, and evaluation of the program is underway. Teachers continue to rave about the program, and we were particularly proud to have a past participant sponsor the high school student winning APS' first prize in the International Science and Engineering Fair. The Past-President's Symposium at Experimental Biology '93 also targeted the high school level with a morning session attended by over 60 New Orleans area teachers and students. Afternoon sessions were split into Teachers In-Service Workshops, lead by 1992 Summer Research Program teachers, and a student session covering careers and the use of animals in research. Collections of lesson plans, translating Summer Research Program teachers' laboratory experiences into classroom exercises, were distributed and evaluations rated these as "very useful".



Frank L. Powell, Jr.

The Education Committee also remains firmly committed to programming for APS members and presented an en-

core of the successful Workshop on "Imaging Techniques." These Sunday Workshops will remain the cornerstone of our continuing education efforts for professional physiologists. We also cosponsored a Tutorial on "Strategies for the Study of Gene Expression and its Regulation" and sponsored a Symposium on "Physiology and Pharmacology Disciplines for the 21st Century." This Symposium, dealing with curricular and graduate education issues, was highly attended and enjoyed lively discussions. Finally, we continued work on undergraduate and graduate physiology teaching. The Education and Teaching Section Steering Committees met at Experimental Biology '93 to decide how the two groups could be most effective by complementing and supporting each other in this area. Francis Belloni represented APS at the Third Conference of the Coalition for Education in the Life Sciences. Penelope Hansen, *Advances in Physiology Education* editor, Stanley Schultz, Past-President, and I attended the Human Anatomy and Physiology Society (HAPS) meeting in Beaumont, TX. We presented Workshops and Update Seminars and staffed an APS exhibit booth at this meeting organized by APS member Wayne Carley. We established some common ground between APS and HAPS, whose members teach mainly at community and non-research undergraduate colleges, on issues like animal use in teaching laboratories and the development of Refresher Courses.

Frank L. Powell, Jr., Chair

Finance

It is the responsibility of the Finance Committee to review and modify the 1993 budget that was approved by Council in October 1992. With the executive director, business manager, and publications manager, the committee reviewed the Society's performance in 1992, revised the 1993 budget, and submitted it to Council for final approval. Based on the performance of the Society in 1992, the Finance Committee recommended an overall budget for 1993 of $9,974,000.

Franklyn G. Knox

During 1992, the Society's journal operations ended the year with income in excess of expenses of $679,033. This figure includes the allocation of $200,000 to a contingency fund. The Society's book operations ended the year with income in excess of expenses in the amount of $101,475. The Society's general fund derived from direct membership activities ended the year with a deficit of $173,541.

The Finance Committee is also responsible for reviewing the performance of four management groups managing our investment accounts through the consultative services of Shearson Lehman Brothers. As of December 31, 1992, the accounts had the following market value: Operating Reserve Investment Account = $6,271,308; Publications Contingency and Reserve Account = $4,346,689; Caroline tum Suden Account = $308,912; IUPS Account $224,975; Perkins Memorial Fund =$172,698; Second Century Program Fund = $1,163,177.

In 1993, the Society continued its transition to a three-tiered subscription system with the goal that nonmember individuals and members would ultimately pay two-thirds and one-third of the institutional rates, respectively. As a result of Council's decision, the 1993 institutional subscription rates were increased as follows: consolidated *American Journal of Physiology* = 10%; *Journal of Applied Physiology* = 7%; *Journal of Neurophysiology* = 8%; *Physiological Reviews* = 0%; *AJP: Cell Physiology* = 20%; *AJP: Lung Cellular and Molecular Physiology* = 20%; *AJP: Heart and Circulatory Physiology* = 15%; *AJP: Gastrointestinal and Liver* = 6%; *AJP: Regulatory, Integrative and Comparative Physiology* = 6%; *AJP: Endocrinology and Metabolism* = 0%; and *AJP: Renal, Fluid and Electrolyte Physiology* = 0%. Member and nonmember rates remained unchanged.

In proposing the 1994 subscription rates, the Finance Committee had extensive discussions with the Publications Committee and journal editors. Several options were considered for recovering the additional costs associated with an expanding journal program. These included increasing page charges, increasing subscription prices, initiating a manuscript handling fee, and limiting the number of pages published. As a result of the discussions, the Finance Committee recommended, and the Council approved raising institutional subscription prices as a percentage of total costs associated with each journal. It was recommended that the journals be increased as follows: consolidated *American Journal of Physiology* = 8%; *Journal of Applied Physiology* = 4.3%; *Journal of Neurophysiology* = 6.2%; *Physiological Reviews* = 1.8%; *AJP: Cell Physiology* = 20%; *AJP: Lung Cellular and Molecular Physiology* = 0%; *AJP: Heart and Circulatory Physiology* = 11%; *AJP: Gastrointestinal and Liver Physiology* = 6%; *AJP: Regulatory, Integrative and Comparative Physiology* = 7%; *AJP: Endocrinology and Metabolism* = 2%; and *AJP: Renal, Fluid and Electrolyte Physiology* = 0%. The 1994 rates on most of the APS journals for members and nonmember individuals will remain unchanged.

For 1993, the Society General Fund is projected to show a deficit of $231,873 as a result of the Council's decision to support two APS Conferences, one in San Diego, California, and the other in San Francisco, and to allocate funds for a high school science teachers summer research program. As part of the Finance Committee's and Council's strategic plan to utilize a portion of the Society's reserves to benefit the membership, $150,000 was transferred from the managed ac-

counts to the Society General Fund. In addition $25,000 was allocated for support of the minority programs administered by the Porter Physiology Development Committee.

The Council and Finance Committee also approved the formal establishment of a Strategic Goals Fund derived from income on the Society's cash management funds. This Fund will be utilized to initiate new programs and to maintain existing programs that fulfill the goals of the APS Strategic Plan. Unexpended funds in any given year will be carried over for use in subsequent years. For 1993, the Strategic Goals Fund will be utilized to support the High School Teachers Program, the Porter Physiology Development Program, and the APS Conferences. Unexpended funds will be carried over to 1994 to initiate two new programs: the Career Enhancement Awards and the APS Distinguished Lectureships.

The Finance Committee is also responsible for receiving the annual audit performed by Coopers and Lybrand. The audit found the operations of the Society to be "in conformity with generally accepted accounting principles" and that the finance statements "present fairly, in all material respects, the financial position of the American Physiological Society." For the information of the membership, the Society's Balance Sheet for 1993 is provided for review.

Franklyn G. Knox, Chair

APS Balance Sheet
December 31, 1992

Assets

Cash, including savings accounts	$ 179,571
Certificates of deposit	4,088500
	4,268,071
US government securities	7,575,217
Marketable securities, at cost, market value: 1992, $7,749,423	6,200,844
Accounts receivable, including $20,000 in 1992 due from FASEB	543,925
Accrued interest receivable	144,096
Advances to section editors	177,736
Inventories, net of allowance of $300,000 in both 1992 and 1991	619,997
Prepaid expenses	22,404
Furniture, fixtures, and equipment, net of accumulated depreciation of $204,127 in 1992	76,600
	19,628,890
Net assests restricted and allocated for unexpended grants and contracts:	
Cash	106,543
Certificates of deposit	196,656
US government securities	156,190
Marketable securities, at cost, market value: 1992, $546,051	522,418
Accounts receivable, net	5,292
	987,099
	$20,615,989

Liabilities

Accounts payable and accrued expenses, including $140,113 in 1992 due FASEB	$ 947,475
Unearned revenue	
Subscriptions	4,540,869
Dues	189,380
	4,730,249
	5,677,724
Unexpended grants and contracts	987,099
	6,664,823

Operating Fund Balances

Publications general fund	8,778,630
Publications special fund	1,959
Society general fund (deficit)	(145,563)
Publications contingency and reserve fund:	
Program Endowment Fund	
Principal	3,495,248
Income	743,296
Second Century Program Fund:	
Principal	969,056
Income	108,540
	13,951,166
	$20,615,989

International Physiology

A number of recommendations from the International Committee have received approval from the Council during the past year. International physiology will now be included in the Strategic Plan of the APS as follows:

Goal:

- To facilitate interchange between the APS, other physiological societies, and their individual members.

Objectives:

- To maintain and strengthen relations with IUPS.
- To distribute journals to developing countries.
- To encourage formation of international interest groups to promote scientific interactions in particular geographic areas.
- To develop mechanisms for promoting interactions and exchanges of APS members and foreign scientists.

To this end a subcommittee of the International Committee (IC) for Latin America was established with its Chair Clark Blatteis ex officio to the International Committee. The founding membership of this subcommittee will include Drs. Lahiri, Spurr, and Zeballos representing APS and Drs. Cereijido (Mexico), Quevedo (Peru), and Zapata (Chile) representing Latin American countries. The first report of the subcommittee was submitted to the IC in April and indicates that a number of initiatives are under way. Council had previously approved formation of a subcommittee to interact with the Chinese Physiological Society of Taiwan. This Sino-American Initiative in Biomedical Sciences & Medical Education (SAIBS) is chaired by Craig Malbon. During 1992, Malbon met on several occasions in Taipei with members of the Executive Committee–Chinese Physiological Society to discuss the initiative. The members of SAIBS are focusing on enhanced opportunities for exchanges between the societies and are optimistic that funds can be raised for this purpose from the private sectors of both countries. To this end the IC is recommending to Council that guidelines be established for the raising and usage of funds raised by subcommittees of IC. The IC is also making recommendations to Council concerning the general terms of reference and guidelines for appointment of members to subcommittees.

Donald J. Jennings

The first Congress of the newly formed African Association of Physiological Sciences (AAPS) was held in Nairobi, Kenya in September 1992. Clark Blatteis, Daniel Richardson, Harvey Sparks, and George Somjen were sponsored by APS to participate in the Congress in several capacities. Richardson co-chaired a workshop on teaching. Blatteis organized and chaired a symposium on thermal physiology sponsored by IUPS. APS members helped the AAPS and its Congress Chairman K. O. Adeniyi of Kenya to organize the meeting and to raise funds from the United States National Science Foundation for the travel of Africans to the meeting. From discussions held at the Congress, a recommendation will be made to Council for the formation of an African-American subcommittee to the IC.

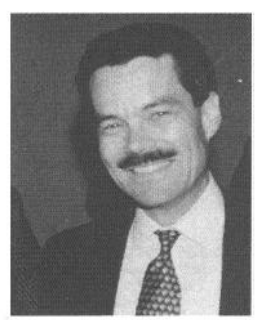
This year's IC's third workshop-symposium at the Experimental Biology '93 Meeting entitled "Biomedical Research in Developing Countries: Current Problems in Nutrition" was organized by Richardson and was a collaborative effort with the American Institute of Nutrition. For Experimental Biology '94, Blatteis has organized a workshop "Perogatives and Commitments pertaining to Foreign Nationals: The U.S. Institution and the Individual Sponsor." This timely session will explore the implications of new federal regulations and the way they affect both the foreign visitor and the sponsor.

APS continues to provide journal subscriptions through the American Society for the Advancement of Science (AAAS) to medical libraries in many underdeveloped countries. More recently, we are also sending journals to a number of institutions in the former Soviet Union. The AAAS has received a substantial grant from the MacArthur Foundation in support of this project.

This is my last report to the Society as Chair of the International Committee. It has been a privilege to work with Presidents, Councils, Martin Frank, and members of the committee during the past five years in evolving new directions for APS in interacting with the international physiological community. In particular, I wish to acknowledge the important contributions in time and creative thought which Blatteis and Richardson have provided in the development of our initiatives.

Donald B. Jennings, Chair

Liaison With Industry



Stephen Flaim

The primary focus of the Liaison with Industry Committee over the past year has been to encourage a greater involvement of APS members who are employed in industry in the affairs of the Society, both scientific and otherwise. A secondary goal is the expansion of the APS membership in the industrial sector. The APS has approximately 100 members who are employed in industry. This is a

very small number considering the number of companies in the United States that are involved in the development of medical and veterinary products.

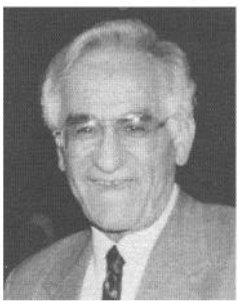
The first step, which was taken last year, was to establish a mailing list representing these members and then to initiate communication by mail with these members. During the current year, this member subset was transformed into an APS Special Interest Group. This group is called the Physiologists in Industry Group. Approximately quarterly newsletters have been sent to members of this group with the generous assistance of Linda Buckler at the APS office in Bethesda. As part of these communications, members were encouraged to submit specific symposia proposals for future APS conferences. We are pleased to report that a total of six symposia proposals were submitted. The Liaison with Industry Committee subsequently evaluated and ranked these proposals. Three proposals were recommended to the Program Advisory Committee for consideration. We are extremely pleased that the symposium ranked first by the Committee was accepted by the Program Advisory Committee and subsequently by the Program Committee for inclusion in the scientific program for Experimental Biology '94.

It is apparent that APS members in industry are, indeed, interested in increased involvement with the APS. Their interest lies mostly on a scientific level and is focused especially in the areas of organizing and contributing to scientific symposia and conferences, collaboration with members in the academic sector, appointments on APS journal editorial boards, and positions on APS committees. The Liaison with Industry Committee considers it a goal to facilitate these types of appointments and interactions since it will be this type of scientific recognition that will attract qualified nonmember industrial physiologists to join our Society.

Stephen Flaim, Chair

Long-Range Planning

The APS Long-Range Planning Committee (LRPC) held its first meeting since it was charged by Council to annually review the Society's progress toward implementation of the Strategic Plan. The meeting was held in New Orleans during the Experimental Biology '93 meeting. The LRPC had earlier elected to review progress toward implementation of the finance objectives at this meeting and had invited Franklyn Knox, chair of the Finance Committee, and Martin Frank, Executive Director, to the meeting. Unfortunately, at the last minute, Knox was unable to attend because of illness. Frank summarized the progress toward accomplishing the four finance objectives of the strategic plan. When he left, the committee reviewed with James Liakos (the Society financial officer) progress toward completing the six actions in the plan directed at accomplishing the financial objectives.



Francis J. Haddy

The LRPC concluded that, in general, progress toward accomplishing the financial objectives of the strategic plan was good. All actions were completed except the one required to expedite conference profitability by 1998 (action 4). That action required the formation of an ad hoc committee made up of members from the Program and Finance Committees to assess opportunities for profitability. We believe this ad hoc committee should be established but that, in its search for profitability, it not lose sight of the importance of maintaining the excellence of the conferences; i.e., it should not move too quickly to profitability but instead continue to strive at maintaining the excellence of the conferences, anticipating that once recognized as an excellent forum, the conferences will serve as a long-lasting economic and recruiting vehicle for the Society.

Discussion focused on the fund established to accomplish the strategic plan goals. In particular, what assurance is there that it will grow with inflation, maintaining level buying power? The LRPC suggests that a plan be established to assure growth at least at the rate of inflation.

The LRPC is concerned about the extent to which the Society depends on publications for funding of operations. Concern was also expressed about the potential impact of electronic publishing in the Society's revenues. It therefore decided to review the publications section of the strategic plan next and to again review finances at the same time. To expedite its study, the LRPC requests reports from these committees well in advance of its next meeting. It was suggested that the LRPC meet more frequently and perhaps add conference calls. It was also suggested that the LRPC address true long-range planning as outlined in the LRPC charter rather than simply review Council's progress at implementing the strategic plan.

Francis J. Haddy, Chair

Moving?

If you change your address or telephone number, please notify the APS office (301-530-7171) as soon as possible.

Membership

New Members

During the first half of 1993, the Membership Committee reviewed a total of 90 applications for membership. Of these, 66 were approved for regular membership, and 21 were approved for corresponding members. Three applications were considered premature and the investigators were given the opportunity to obtain associate membership status.


Diana Marver

The new regular members were on average 43 years old and had an average of 30 publications. They spent 69% of their time doing research and reported spending 18% of their time on activities related to teaching. New corresponding members were a little younger on average (40 years old), with a few less publications (20 on average). The average time spent on research and teaching was 67% and 21%, respectively. Some additional statistics follow.

Category	%PhD	%MD	%MD/ PhD	%Men	%Women
Regular	56	30	14	77	23
Corresponding	62	19	19	90	10

Changes in Criteria for Membership

The Membership Committee and a special Task Force on Membership have been considering suggestions to modify the criteria for membership in the American Physiological Society. The primary incentive comes from a desire to ensure that young investigators have an opportunity to actively participate in the future of this Society.

As evidenced by the statistics, our incoming regular members are for the most part established in their fields. In the regular category for this round, over 25% of the candidates were full professors at their institutions; in the corresponding category, that fraction rose to 38%. The argument has been made therefore that in order to maintain the vitality and growth of the APS we need to allow investigators to join our ranks at a much earlier stage of their career.

As this discussion proceeds and the proposed Bylaw changes are approved by the Council, members will be advised of the recommendations and given an opportunity to vote for or against their adoption.

Diana Marver, Chair

Perkins Memorial Fellowship

The Perkins Memorial Fellowships are designed primarily to provide supplemental 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.


Bodil Schmidt-Nielsen

In 1992 the committee was able to make four awards to Norbert Sandor, Budapest (host: F. F. Weight, NIH); Peter Tooth, Budapest (host: H. A. Fozzard, University of Chicago); Wieslow E. Kozak, Poland (host: Matthew Kluger, University of Michigan); and Vaclav Hampl, Poland (host: E. Kenneth Weir, University of Minnesota).

The amount of money to be distributed has steadily declined because of the low interest rates. The committee is exploring options to strengthen the financial program. In the future, the committee plans to award fewer but larger grants to deserving candidates.

Bodil Schmidt-Nielsen, Chair

Porter Physiology Development

Financial stabilization of the Porter fellowship program has been the primary focus of the Porter Physiology Development Committee during the past year (1992-1993). Completion and distribution of the solicitation brochure was achieved with the assistance and support of President Stanley G. Schultz and Executive Director Martin Frank. The membership response resulted in personal contributions totaling $3,430 from the Society membership as of February 25, 1993. In addition, the Council again allocated for this year's program the sum of $25,000, and this support has substantially protected the integrity of the fellowship awards.

In response to a direct solicitation, the Upjohn Company Foundation has pledged to contribute one full fellowship of

$13,500 each year for three years, beginning in February 1993. We gratefully acknowledge this significant response of the Upjohn Company Foundation. The identification of the specific fellow to be supported by these funds will be presented in future reports.


Eleanor Ison-Franklin

A very generous increase in the annual contribution from the William Townsend Porter Foundation was presented along with an offer that the Foundation would add to its contribution a matching amount of $1.00 for each $2.00 raised by the Society from external sources, up to a maximum matching allocation of $20,000. We are very pleased that the Council accepted this offer and can report that, as a result of the personal contributions from 77 members and a full fellowship contribution from the Upjohn Company Foundation of $13,500, a matching amount of $8,465 was received from the William Townsend Porter Foundation for a grand total contribution of $58,465 as of March 22, 1993.

The Lederle Laboratories of the American Cyanamid Company continued their annual contribution of $2,000 to the program; their sustained support each year reflects a commitment to the development of more minority physiologists.

We express our sincere gratitude to all supporters and to the continued interests of A. Clifford Barger, President of the William Townsend Porter Foundation, and to David Crandall of Lederle Laboratories. We extend a warm welcome to the Upjohn Company Foundation as a new contributor and supporter of our graduate and postgraduate minority training programs in physiology. We hope that this precedent will be followed by other corporations as we continue our efforts to interest others in support of a demonstrated success story.

At the March 30, 1993 meeting of the Committee, additional actions were taken regarding improvement in procedures and ininstructions to applicants. These included obtaining more information regarding other proposals for support by the applicant and more information regarding the training environment planned for the fellow. The previous practices of supplemental awards to other fellowship funding was voted to be discontinued except in extraordinary financial circumstances.

Between April 1992 and March 1993, six predoctoral fellows were funded. Three new applications for predoctoral support, one application for an undergraduate summer research fellowship, and four continuation/renewal requests were evaluated by the Committee at its meeting on March 30, 1993. Notification of the Committee's decisions were made to the applicants in May 1993.

The Porter Committee members again served, in September 1992 and in February 1993, as a review panel for the applicants to the Travel Fellowships for Minority Physiologists, a program funded by the National Institute of Diabetes, Digestive and Kidney Diseases and directed for the Society by Martin Frank. Reynaldo Elizondo, a member of the Committee, also presented the luncheon talk for the travel fellows at the Experimental Biology 93 meeting in New Orleans.

We are pleased to welcome to the Committee Phillip L. Rayford. We must also include our gratitude to David Mohrman, whose term expired in December 1992 and whose contributions during his membership were invaluable to the work of the Committee.

Eleanor L. Ison-Franklin, Chair

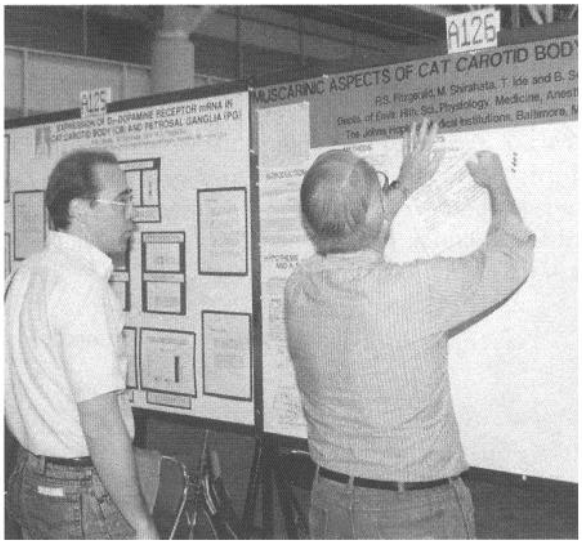
Program

The Program Advisory Committee (PAC) is comprised of representatives from each Section and Special Interest Group; it initiates proposals for scientific programming at the spring Experimental Biology (EB) meetings and for APS Conferences, and it ranks these proposals. The Program Committee (PC) is a much smaller body of six members; it fine-tunes the decisions of the Program Advisory Committee and recommends its selections to the APS Council for final approval. Both committees are bending their efforts toward the common goal of making the scientific meetings of the APS as excellent and exciting as they possibly can be.


Heinz Valtin

Three APS Conferences have been held thus far. They have been attended varyingly by approximately 250 to 800 participants who have given mostly rave reviews. Two conferences have been scheduled for 1993: "Physiology and Pharmacology of Motor Control," October 2-5, San Diego, CA; and "Signal Transduction and Gene Regulation," November 17-20, San Francisco, CA. There will be three conferences during the summer and fall of 1994: "Physiology of the Release and Activity of Cytokines"; "Mechanotransduction and the Regulation of Growth and Differentiation"; and "Regulation, Integration, Adaptation: A Species Approach." Two conferences are scheduled for 1995: "Understanding the Biological Clock: From Genetics to Physiology"; and "New Discoveries in the Physiology of the Pancreatic Polypeptide Family: Molecules to Medicine." Watch for announcements in *The Physiologist* or contact the APS Office in Bethesda for further details. This new venture of the Society appears to be off to a very strong start. The present report will concentrate on our efforts in regard to Experimental Biology meetings.

Most of you know that, beginning with the meeting in



Poster session

New Orleans this past March, the spring meeting had a partly new format, as well as the new title Experimental Biology '93. The changes were needed because several of the societies that used to participate in FASEB meetings had become so dissatisfied with those meetings that they had left them. Yet, an intersociety meeting during the spring seemed worth preserving, not only for the scientific interactions among the societies but also because of their very strong technical exhibits and placement services. The major change at Experimental Biology '93 was the introduction of eight themes that spanned the interests of the participating societies and that, we hope, will continue from year to year. A given theme was scheduled in the same location and ran for most or all of the week. The idea was to create "meetings within a meeting," where scientists belonging to different societies but sharing similar interests would gather throughout the week. Concurrently, each sponsoring society ran its own meeting, so to speak, as in past years; i.e., each society sponsored slide sessions, symposia, and posters that had not been earmarked for a theme.

As with all new ventures, the first run-through in New Orleans revealed some weaknesses that the PAC and the PC are working hard to correct. First and foremost among these was an apparent obsession with themes, which led to a very confusing printed program; the latter was a most unfortunate mistake because it started everyone off on the wrong foot—confused, frustrated, annoyed. An immediate return to a sequential listing of all sessions, with indices that cite pages, is mandatory. A second weakness concerned posters. While having a given poster displayed for an entire day was applauded, the requirement to have all authors in attendance during the same two and one-half hours (especially during the lunch hour) was not only fatiguing but prevented authors from visiting posters that were displayed concurrently. We will try to preserve the first feature but return to a staggered schedule for authors to be in attendance at their own posters. A third problem, which applied only to some subdisciplines, was a lack of coordination in scheduling. In some instances, for example, certain sessions in renal physiology appeared to conflict with thematic sessions in epithelial cell biology. We will try to correct this shortcoming by making sure that the same people are involved in programming both the thematic and the societal sessions in any given area of special interest. A fourth possible weakness was a perceived lack of sessions in respiration. Beginning with Experimental Biology '94, a new theme called Respiratory Biology will be added. This move is consistent with the original intent to remain flexible in modifying the list of themes. A request for critique to all members of APS who attended Experimental Biology '93 in New Orleans has elicited a number of responses, both pro and con. On the positive side, many participants found that the themes worked for them, as did the topic category lists, through which their abstracts were channeled into the appropriate sessions.

Four committees have been established to implement future Experimental Biology meetings. 1) The EB Program Committee consists of Executive Secretaries and the Program Chairs of the sponsoring societies and is responsible for the scientific organization and quality of the spring meetings. The committee will meet up to four times a year. 2) The EB Theme Committee consists of representatives from each sponsoring society to each theme area; in the case of APS, these representatives are mainly members of the Program Advisory Committee. The committee will meet twice a year: once in early summer, to select symposia, tutorials, workshops, etc. from the lists that each sponsoring society has approved and to assign these selections to specific themes; and a second time, during the winter, to program abstracts that have been submitted for themes and to consider other matters, such as modifications of themes, review of topic categories, etc. 3) The EB Management Committee consists of the Executive Secretaries of the sponsoring societies and deals with operational aspects of the spring meetings. 4) The Managing Board consists of a member of Council or the equivalent from each sponsoring society and holds trademark registration for EB meetings. This committee is responsible for financial aspects of spring meetings. It also selects sites for future spring meetings, approves guest societies and conversion of guest societies to sponsoring societies, and handles other long-range organizational matters.

Members of the APS should feel free to contact any of the above committees with concerns or suggestions, especially the first two. The two program committees of the APS are eager to meet the needs of the membership and to make the scientific programming so current and exciting that attendance at gatherings such as Experimental Biology once again becomes a "must."

Heinz Valtin, Chair

Publications

On January 1, 1993, L. R. Johnson of the University of Tennessee became chairman of the Publications Committee, and L. Mendell of the State University of New York and J. A. Williams of the University of Michigan joined L. B. Rowell and D. L. Kunze as regular members.

Leonard R. Johnson

Johnson thanked C. M. Tipton for his leadership in 1992 as acting chairman of the Committee. The Publications Program experienced another year of growth and development and responded actively to Council's directive to work toward financial self-sufficiency for the individual journals while maintaining and improving their quality.

Journals

In 1992, the Publications Department received 6,258 submitted manuscripts, rejected approximately 40%, and published over 27,800 pages in its research and review journals. These figures reflect increases of 10% in submissions and 10% in articles published. Three journals had a significant increase in submissions: *Journal of Neurophysiology*, 43%; *AJP: Heart and Circulatory Physiology*, 15%; and *AJP: Cell Physiology*, 16%.

Published pages for the *American Journal of Physiology, Journal of Applied Physiology, Journal of Neurophysiology,* and *Physiological Reviews* are up 10% through June 1993. Through May 1, submissions for the AJP have stayed about the same, although the rate varies widely among the journals. The *Journal of Neurophysiology* submissions have increased by 11% for the same time period, but for the *Journal of Applied Physiology* the rate has decreased by 14%.

Two supplements were published in 1992. The *Journal of Applied Physiology* supplement "Cosmos 2044" was a NASA-funded symposium. The *Physiological Reviews* supplement, "Forty Years of Membrane Current in Nerve" heralded the 40th anniversary of the Hodgkin-Huxley-Katz equation.

Journal Prices

In 1993 institutional subscription prices for the journals were changed by varying percentages based on the expected increase or decrease in pages and inflation. The domestic institutional price of the *AJP* consolidated was increased by 10%; *JAP*, 7%; and *JN*, 8%. The price of *PRV* was not raised. The change in prices for the individual *AJP* journals varied considerably, from 0% to 20%, reflecting the estimated growth in pages in some journals and a decline in others. Prices of the journals to individuals did not change in 1992, for the third year in a row.

The Society is working toward making each journal financially self-sufficient, and this factor also has to be taken into account when setting prices. Particular attention is being paid to *NIPS*, a joint publication of the Society and IUPS, which has not yet reached financial self-sufficiency. Prices have been increased to $70 for institutions, $60 for nonmembers, and $30 for members of IUPS-affiliated societies. APS members continue to receive the journal free.

Subscriptions

The decline in subscriptions for the consolidated *AJP, JAP, JN*, and *PRV* continued in 1992 (-3.7%, -4.5%, -3.7%, and -2.7%, respectively). Only two of the individual *AJP* journals increased subscriptions. We are confident that the addition of a marketing coordinator to the APS staff in 1993 will halt or at least slow this loss, which is a general phenomenon in biomedical publications caused primarily by a decline in foreign subscriptions.

In 1992 APS participated in a multiclient research study "Scientific, Technical, and Medical Publishing in the U.S. Market into the 90s" carried out by Robert Ubell Associates of New York. The purpose of the study was to obtain information regarding the future of scientific, technical, and medical periodical publishing in the US library marketplace in the mid-1990s. It targeted issues of critical importance to periodical publishers and subscription agents, e.g., rising prices and shrinking subscription bases, the effect of electronic publishing, and the future focus of public and private funding. The survey employed qualitative techniques (personal interviews and focus groups) as well as quantitative means (mail questionnaires and telephone surveys). This survey will provide us with some of the critical details we need on the effectiveness of our current marketing and distribution strategies.

Costs of Publication

The Publications Department has been working to reduce costs by encouraging the submission of approved manuscripts on disk. Copyediting on an author-supplied disk saves $17.00 in typesetting costs per page. In 1992, the percentage of manuscripts processed from author disks increased from 35% to 64% of total articles. In the future, submission on disk might become mandatory for authors, enabling APS to publish articles at the lowest possible cost.

The efforts by the Publications Committee and Editors to "stabilize" the costs of the Editors and Associate Editors for the review process has been very successful. Costs rose only 3% in 1992 compared with 14% the year before. Seventeen percent of total journal costs are for the reviewing process.

Harris J. Granger conferring with his Editorial Board at Experimental Biology '93.

Because of the concern about decreasing income and increasing costs in the future, the Council, the Committee, and the Editors have had a continuous dialogue regarding the efficiency of paying honorarium for journal editors, the institution of a manuscript handling fee, the imposition of mandatory page charges, and a page limitation for the journals. Rather than institute any of these new policies, the Editors prefer to control reviewing costs by increasing efficiency in their offices, to decrease the number of pages published by increasing rejection rates (by reducing the acceptance of C papers with low priority scores), to save typesetting costs by soliciting more manuscripts on disks and by encouraging authors to eliminate extraneous material (i.e. numbers of pages, figures, and tables). The Committee and Council accepted their recommendations. The Council also accepted the Committee's recommendation that the present policy of nonmandatory page charges be continued but asked for more information on the present waiver policy, with recommendations for improving the collection of page charges, especially from authors and institutions that seem able to pay.

Based on discussion with the Editors, the Committee recommended that the payment of honoraria or discretionary funds be shelved but funds be made available for travel to the Experimental Biology meetings or the Society for Neuroscience meetings for Editors and Associate Editors who would not normally attend.

Appointment of Editors

Five candidates for the editorship of the *Journal of Applied Physiology* were interviewed by the Publications Committee in Bethesda; J. E. Remmers of the University of Calgary Health Science Center was appointed for a three-year term effective July 1, 1993. Three candidates were interviewed for the editorship of *AJP: Lung Cellular and Molecular Physiology*. D. E. Rannels, who is currently serving as interim editor, was appointed for a three-year term beginning January 1, 1994. At the Spring Publications Committee meeting, D. Benos was unanimously recommended by the Publications Committee for a second term as Editor of *AJP: Cell Physiology* after a formal evaluation of his first term.

New and reappointed editors of the journals are being encouraged to meet with their Associate Editors in Bethesda to set up procedures and discuss ways to implement their plans for the development of their Journals. The Experimental Biology meeting also provides an occasion where all Editors are given the opportunity to meet with their Associate Editors, as well as Editorial Board members at the general meeting.

The interview process, the evaluation of editors, and the encouragement of meetings of Editors with their Associate Editors are all responses to Council's directive to maintain and promote excellence in our publications program.

Evaluation of APS Journals

The evaluation of the journals themselves through citation statistics is available for the JAP, JN, PRV, and AJP consolidated but has never been available for the AJP individual journals. The Publications Department has negotiated with ISI for a specialized study that will compare citation statistics among the individual AJP journals as well as with their major competing journals. The Committee hopes to have the report soon.

Electronic Publication

The Committee is still exploring the possibilities of electronic publication of the APS journals. During 1992, staff members visited a CD producer in Virginia; attended a workshop on CD-ROM publications offered by Dataware; met with Lightbinders (the company that produces the CD-ROM disks for the *Journal of Biological Chemistry*); attended a two-day symposium of the Society for Scholarly Publishing on the impact of electronic technology and publishing on researchers, publishers, and libraries; met with the Editor of the *Journal of Clinical Trials* to discuss the founding and progress of this new on-line journal; encouraged the APS printers to develop their own CD-ROM capability so they can be ready to offer this service by 1994; and monitored the success of the CD-ROM experiments of the *Journal of Biological Chemistry* and the journals of the American Society of Microbiology.

The establishment of Gopher, the American Physiological Society Information Network, has allowed users to receive information about the journals, including Tables of Contents from recent issues. In the future, abstracts of manuscripts will be inputted with permission of the authors as soon as an article has been accepted, which is 3-5 months before publication.

Duplicate and Redundant Publication

The Committee and Editors discussed at their meetings in 1992 and 1993 the problem of duplicate and redundant publications. Guidelines were drawn up that should be very helpful in the future. Several editors have already published or plan to publish editorials on the subject. Meanwhile the Committee instructed the Publications Department not to process submitted articles until the letter of originality is received. Also the section referring to originality in the Information for Authors is to be published in the journals several times a year.

Books

The *Renal Physiology* handbook, published jointly with Oxford University Press, was published in March 1992. Handbooks in progress include *Cell and General Physiology, Adaptation to the Environment, Comparative Physiology, Aging, The Endocrine System,* and *Exercise*. Four books in the Clinical Physiology series were published in early 1992: *Endothelin* (G. M. Rubanyi, Editor); *Hypoxia, Metabolic Acidosis, and the Circulation* (A. I. Arieff, Editor); *Glucose Metabolism, Diabetes, and the Vascular Wall* (N. Ruderman, Editor); and *Pathophysiology of Hypertension in Blacks* (J. C. Fray and J. G. Douglas). *Flow-dependent Regulation of Vascular Function in Health and Disease* is in progress.

A *People and Ideas* book on the history of respiration is in progress. *The History of Gastrointestinal Physiology* by H. Davenport was published in 1992 under the imprimatur of APS.

William H. Dantzler addressing his Editorial Board at Experimental Biology '93.

Conclusion

The Committee takes pride in the continued excellence of the Society's publication program and congratulates those whose dedication make that quality possible—authors, reviewers, editors, publications staff, and committee members.

Leonard R. Johnson, Chairman

Section Advisory

The past year has been an active and productive one for the Section Advisory Committee. Working closely with Council, a number of important actions and new initiatives have been accomplished. The following is a summary of some of these actions and new initiatives.

Leonard Jefferson

1) Council accepted the recommendation that Sections be allowed to invite the editor(s) of parallel journals to serve on their steering committees as *ex officio* members. This action requires the Sections to modify their operating procedures and to discuss the change with their membership and the editor(s).

2) Council approved the establishment of a Section Coordinating Center in the Society Office in Bethesda. This Center will reside in the Member Services Department and will be managed by Linda Buckler. The Center will set up schedules with the Section officers to assist them in their efforts to facilitate communication within the Sections.

3) Council approved a revised formula for the provision of funds to Sections. The new formula allocates $500 to each section plus $2.00 for each primary regular member and $1.00 for each secondary and tertiary regular member. This allocation is expected to encourage Section to send mailings to their membership. Furthermore, with the adoption of this revised formula, each Section must stay within their budget.

4) Council took under consideration the recommendation that councilors always be elected for a three-year term. The decision was made that an individual who serves a partial term as Councillor will have his/her name placed on the ballot at the time an election is held to fill the position for a full term.

5) Council approved a revision in the bylaws that will permit the nominating committee to increase in size to include the chair of each Section. This proposed change was presented for a vote at the 1993 Spring Business Meeting of the Society and will take effect with the selection of candi-

dates for the 1994 ballot. This action allows the SAC to meet a second time each year, i.e., once in a joint meeting with Council and again as the nominating committee. At the latter meeting, SAC will be informed by the past president of recent activities of the Council.

6) Council approved a proposal to provide each Section with funds to endow an annual lectureship. These "APS Distinguished Lectureships" are designed to strengthen the scientific meetings, highlighting the types of research represented by a given Section and foster increased participation by the membership in Society functions. In allocating the funds, the Council asked each Section to name the lectureship after a distinguished physiologist who has made seminal contributions to that area of research. Once the lectureship is named, Sections are to identify an individual with world-class stature to present the lecture and participate in Section activities during Experimental Biology '94. The Society has allocated $1,000 for an honorarium and up to $2,000 for travel expenses for each speaker.

Leonard S. Jefferson, Chair

Women in Physiology

The past year was a busy and productive one for the Women in Physiology Committee. Perhaps the major accomplishment was the development of the Women in Physiology Mentoring Program, which is intended to provide mentoring opportunities for APS members and student who are considering physiology as a career choice. The mentoring program was inaugurated at Experimental Biology '93 in New Orleans with a workshop and reception. Approximately 50 people attended the event, including a good mix of junior and senior physiologists. The Mentoring Workshop consisted of three presentations followed by discussion among the panelists and audience. Betty Vetter, the Executive Director of the Commission of Professionals in Science and Technology, spoke on the status of women in science. Catherine Didion, Executive Director of the Association for Women in Science, spoke on the role of mentoring and provided tips to ensure a successful mentor-mentee relationship. Hannah Carey concluded the program with some specifics on the APS mentoring program. It is anticipated that this event will be held at future APS spring meetings. The workshop/reception allows potential mentors and mentees a chance to learn more about the program and mentoring in general and also provides an opportunity for interaction between mentors and their junior colleagues who are already participating in the program.

Hannah V. Carey

Application forms for those interested in participating in the program as mentors or mentees can be obtained from the APS office. In conjunction with Marsha Matyas, the APS Education Officer, the Women in Physiology Committee is compiling a set of materials that can be used by participants in the program to facilitate the mentoring process. Questions about the program or mentoring in general can be directed toward members of the Women in Physiology Committee or Marsha Matyas.

A second major accomplishment of the committee during the past year was the committee's nomination of an APS member, Susan Leeman, for the FASEB Excellence in Science Award. Leeman was selected from 24 other nominees as the recipient of this year's award. She presented an outstanding lecture at Experimental Biology '93 on her work that characterized the physiology and biochemistry of the peptides substance P and neurotensin. During her lecture she delighted the audience not only with her exciting research but also with her insights into the scientific process and the scientific community at large. She clearly demonstrated her value to the FASEB community as a role model for excellence in science.

Besides the honor bestowed to the recipient, the FASEB Excellence in Science Award carries with it an unrestricted grant of $10,000 provided by Eli Lilly and Company. The Committee on Women in Physiology strongly encourages all APS members to consider nominating female members of our Society for this award. The deadline for nominations each year is May 1. Further information on the nomination process can be obtained from the chair or other members of this committee.

The committee reviewed 145 abstracts for the 1993 Caroline tum Suden Professional Opportunity Awards. To facilitate more participation by junior physiologists in the annual meeting, the number of awards made each year has been increased from 6 to 12. Of the many excellent abstracts that were submitted, 8 graduate students and 4 postdoctoral fellows received travel awards to attend Experimental Biology '93 and participate in the Job Placement Center.

Hannah V. Carey, Chair

Sections and Reports

Society Sections

How To Become Affiliated

In compliance with the Society's Bylaws, a number of sections have been organized encompassing various physiological specialty interests. These sections advise the Society on matters of interest to the specialty represented by the section, assist the Society in organizing scientific meetings, and nominate individuals to membership on Society committees.

Membership in the sections is open to all members of the Society. The Statement of Organization and Procedures for each section established specific requirements for membership. APS members who wish to become affiliated with one or more of the listed sections should contact APS Membership Services, 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel: (301) 530-7171.

Cardiovascular

Harris J. Granger (1993), Chair
James W. Covell (1994), Section Advisory Committee
Hermes A. Kontos (1993), Treasurer
Diana L. Kunze (1994), Program Advisory Committee
Frank C-P. Yin (1996), Program Advisory Committee and Cardiac Mechanics Subsection
William M. Chilian (1996), James E. Faber (1995), and D. Neil Granger (1994), Nominating Committee
D. Neil Granger (1993), Splanchnic Circulation Subsection

Cell and General Physiology

Melvyn Lieberman (1995), Chair and Section Advisory Committee
Caroline S. Pace (1995), Secretary-Treasurer
Jack H. Kaplan (1996), Program Advisory Committee
Donald M. Bers (1996) and J. Mandel (1994), Councillors
Dale J. Benos, Editor, *AJP: Cell Physiology, ex officio*

Central Nervous System

Richard Hawkins (1994), Chair and SectionAdvisory Committee
Celia D. Sladek (1995), Secretary-Treasurer and Program Advisory Committee
Helen Baghdoyan (1996), Beverly Bishop (1993), Helen F. Cserr (1994), Lester R. Drewes (1993), James M. Krueger (1993), and Ralph Lydic (1993), Steering Committee

Comparative Physiology

Eldon J. Braun (1994), Chair and Section Advisory Committee
Carol A. Beuchat (1996), Secretary
Stan Lindstedt (1994), Treasurer
Larry I. Crawshaw (1994), Councillor
Stephen H. Wright (1994), Program Advisory Committee

Endocrinology and Metabolism

Charles Blake (1995), Chair and Section Advisory Committee
David Wasserman (1995), Secretary-Treasurer
Jessica Schwartz (1995), Program Advisory Committee
Richard N. Bergman (1995) and Kenneth L. Barker (1994), Councillors
Claude Desjardins, Editor, *AJP: Endocrinology and Metabolism, ex officio*

Environmental and Exercise Physiology

Ethan R. Nadel (1994), Chair and Section Advisory Committee
Charles Tipton (1996), Secretary-Treasurer and Program Advisory Committee
Kenneth M. Baldwin (1996), Jack A. Boulant (1996), Suzanne Fortney (1996), John E. Greenleaf (1994), John T. Stitt (1996), and Ronald L. Terjung (1995), Steering Committee
Reed W. Hoyt (1996), Hypoxia Group Subsection

Gastrointestinal Physiology

Jack D. Wood (1994), Chair and Section Advisory Committee
Joseph D. Fondacaro (1994), Secretary-Treasurer
Patrick Tso (1997), Program Advisory Committee
Hannah V. Carey (1997), Catherine S. Chew (1997), and Kenton M. Sanders (1997), Councillors

Neural Control and Autonomic Regulation

Cheryl M. Heesch (1996), Chair and Section Advisory Committee
Eileen M. Hasser (1996), Program Advisory Committee
Lawrence P. Schramm (1994), Councillor

Renal Physiology

Roger G. O'Neil (1996), Chair and Section Advisory Committee
Patricia A. Presig (1995), Secretary
Pamela K. Carmines (1994), Treasurer
Bruce A. Stanton (1995) and Leon C. Moore (1996), Program Advisory Committee

Respiratory Physiology

Edward D. Crandall (1996), Chair and Section Advisory Committee
Jimmie T. Sylvester (1994), Secretary
Steven G. Kelsen (1996), Treasurer
Aron B. Fisher (1994), Program Advisory Committee
Richard D. Bland (1994), Councillor and Program Advisory Committee Elect
D. Eugene Rannels, Editor, *AJP: Lung Cellular and Molecular Physiology, ex officio*
John E. Remmers, Editor, *Journal of Applied Physiology, ex officio*

Teaching of Physiology

David S. Bruce (1996), Chair and Section Advisory Committee
Richard Manalis (1995), Secretary
Lois J. Heller (1995), Treasurer
Philip A. McHale (1994) Program Advisory Committee
Roger E. Thies (1996) Councillor and Education Committee Liaison

Water and Electrolyte Homeostasis

John E. Hall (1994), Chair and Section Advisory Committee
Virginia L. Brooks (1996), Secretary-Treasurer
Ian Reid (1995), Program Advisory Committee
William H. Dantzler Editor, *AJP: Regulatory, Integrative and Comparative Physiology, ex officio*

Epithelial Transport Group

John Cuppoletti (1993), Chair and Program Advisory Committee

History of Physiology Group

Giuseppe Sant'Ambrogio (1994), Chair and Program Advisory Committee
Daniel Gilbert (1994), Secretary-Treasurer

Hypoxia Group

Judith A. Neubauer (1996), Chair
Reed W. Hoyt (1996), Secretary and Program Advisory Committee

Myo-Bio Group

Jack A. Rall (1993), Program Advisory Committee

Central Nervous System

Joseph S. Erlichman receiving the Van Harreveld Award from Stanley G. Schultz.

Comparative Physiology

The Experimental Biology '93 meeting was very successful from the point of view of the Comparative Section. A symposium emphasizing a comparative approach to the understanding of the renal countercurrent multiplier system was programed by the Section (organized by Carol Beuchat and Eldon Braun) and was well attended. The number of participants and the level of competition for the Scholander Award were both outstanding. The Scholander competition was topped off by a late afternoon business meeting and social that were well attended by comparative physiologists and guests. This year the Scholander talk was given by Hannah Carey of the University of Wisconsin. The title of her presentation was

Hannah V. Carey

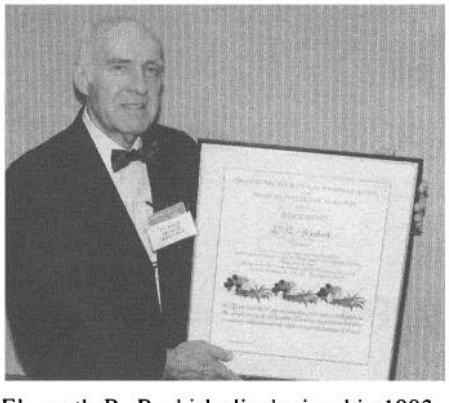
"Going to Extremes: Intestinal Adaptations of Hibernators," which gave a fascinating account of the plasticity of the mammalian intestinal epithelium.

The program committee of the Comparative Section (Jeff Hazel, Steve Wright, and Eldon Braun) has organized another Intersociety Meeting to be held at the Town and Country Hotel in San Diego, October 29–November 2, 1994. With the full participation of the Comparative Section and the other APS sections, this meeting should be a repeat and may even surpass the success of the 1990 Orlando meeting. More details of the meeting can be found on p. 106.

Scholander Award winners, l-r: Stephani L. B. Boykin, third place, University of Arizona; Luiz G. S. Branco, second place, Lovelace Foundation; Charles F. Zwemer, first place, Indiana University; and Eldon Braun, chair of APS Comparative Physiology Section.

Environmental and Exercise Physiology

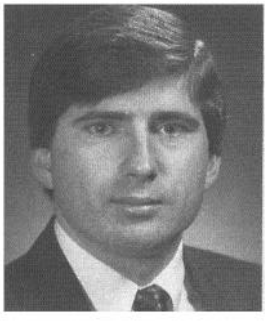
Young Investigator Award presented to Donald Welsh by Ethan R. Nadel.



Elsworth R. Buskirk displaying his 1993 Honor Award.

Water and Electrolyte Homeostasis

Joey P. Granger, professor of physiology and biophysics at the University of Mississippi Medical Center, is the first recipient of the Young Investigator Award for Regulatory and Integrative Physiology, sponsored by the Water and Electrolyte Homeostasis of the American Physiological Society. The award, sponsored by Marion Merrell Dow Research Institute, was presented on March 30, 1993 at the annual business meeting of the section held in New Orleans at the Experimental Biology '93 meeting.



The Young Investigator Award is presented to a member of the American Physiological Society less than 40 years old who has made important contributions to our understanding of regulatory and integrative physiology, especially in the areas of cardiovascular, renal, and neuroendocrine functions. Granger was recognized for his contributions in cardiovascular and renal physiology, especially in understanding the intrarenal mechanisms of pressure natriuresis and the role of atrial natriuretic peptides in long-term regulation of blood pressure.

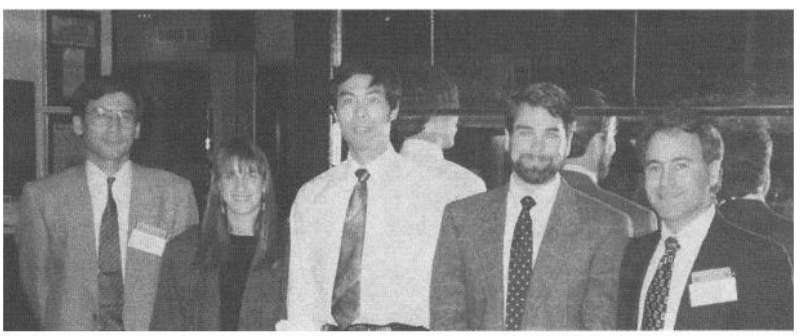
Gastrointestinal Physiology

Recipients of awards of the Gastrointestinal Physiology Section. L-r: Jack Wood, chair of the GI Section Steering Committee; Gilbert A. Castro, Marion Merrell Dow Distinguished Prize in Gastrointestinal Physiology; Carrie J. Merkle, outstanding research abstract by a postdoctoral trainee; Louis W. C. Liu, outstanding research abstract by a predoctoral student; and and Joseph D. Fondacaro, secretary-treasurer of the GI Section.

Representatives of the Gastrointestinal Physiology Section presented awards at Experimental Biology '93. The Marion Merrell Dow Distinguished Prize in Gastrointestinal Physiology is an annual lecture given by a distinguished gastrointestinal physiologist. The first award in 1951 recognized the scientific contribution of Maurice B. Visscher. Awards are also presented for the outstanding research abstracts submitted to Experimental Biology '93 by a predoctoral student and by a postdoctoral trainee.

Renal Physiology

The Excellence in Renal Research Awards were presented at Experimental Biology '93 by the APS Renal Section for the top two abstracts submitted by graduate or medical students and by postdoctoral fellows. This year there were 11 predoctoral and 13 postdoctoral nominees. The competition was very difficult to judge because of the high quality of all the abstracts. The awards were made possible by donations from Hoechst-Roussel Pharmaceuticals, Hoffman-LaRoche, Marion Merrell Dow, Merck Sharp and Dohme, and Miles.



L-r: Kazuhisa Ohishi (postdoctoral category; advisor, P. Carmines, Tulane University); Suzanne G. Greenberg (postdoctoral category; advisor, J. Schnermann, University of Michigan); Chu Chen (predoctoral category; advisor, G. Schofield, Tulane University); and Bruns A. Watts III (predoctoral category; advisor, D. Good, University of Texas at Galveston).

Plan to Attend

Experimental Biology '94

April 24–28 Anaheim, California

1993 Arthur C. Guyton Physiology Teacher of the Year

Linda Costanzo was selected by the Teaching Section of the American Physiological Society as the first Arthur C. Guyton Physiology Teacher of the Year as the outstanding teacher of physiology in North America in 1992. She received a cash award of $1,000 and her travel expenses to attend the Society's annual meeting. The annual award is supported by the W. B. Saunders Company and was presented at the dinner of the Teaching Section on March 28, 1993. After the dinner, Arthur C. Guyton, professor emeritus of physiology at the University of Mississippi in Jackson, told about how he came to write his famous textbook of medical physiology.

L-r: Arthur C. Guyton, Linda Costanzo, Roger Thies, and Lawrence McGrew (associate editor, W. B. Saunders).

Linda Costanzo was selected from a group of six distinguished teachers who were nominated for the award. She has received many outstanding teacher awards from both students and faculty at the Medical College of Virginia and from Virginia Commonwealth University. Her students praised her as a "role model for students and faculty alike." They said, "I have found no other teacher so generous in giving of their time, full attention and sincere concern for us as students," and "She instills a sense of pride and accomplishment in those she teaches." She has been active beyond the university in teaching programs for high school students and in writing examination questions for national medical qualifying exams.

Nominations Invited for Teacher of the Year

The Teaching of Physiology Section of the American Physiological Society is sponsoring the second annual "Arthur C. Guyton Physiology Teacher of the Year Award." This award is supported 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 the teaching of graduate students in a research laboratory.

Each proposed person must be nominated by a member of the American Physiological Society. The nominator is responsible for profiling the following application materials and forwarding three copies to the Chairperson of the Award Selection Committee, postmarked by November 30, 1993.

- A letter of nomination from the nominator.
- Letters of support from three other colleagues familiar with the nominee's teaching career, one being the nominee's chairperson if possible.
- Letters of support from up to 10 current and/or former students.
- Scores on standard student evaluations of teaching effectiveness.
- Competitive teaching honors, such as the Golden Apple.
- Evidence of educationally related activities outside the classroom, such as developing laboratory exercises or teaching software, authoring textbooks or education research articles, education-related presentations at professional meetings, educational committees within the institution, educational consultation with other organizations, public appearances, etc.
- A copy of the nominee's curriculum vitae.
- Any additional documentation that the nominee wished to include, such as number of graduate students trained, number of undergraduate students pursuing careers in physiology, teaching innovations introduced, etc.

The award will be presented at the Teaching of Physiology Section banquet during the annual meeting of the APS at Experimental Biology '94 in Anaheim, CA, in April 1994. The Arthur C. Guyton Physiology Teacher of the Year will receive a framed, inscribed certificate, an honorarium of $1,000, and expenses of up to $800 to attend the meeting. The awardee is requested to write an essay giving her/his philosophy of education for publication in *The Physiologist.*

The Chairperson of the Award Selection Committee is Allen Rovick, Department of Physiology, Rush Medical College, 1750 W. Harrison St., Chicago, IL 60612. Phone: (312) 942-6567; fax: (312) 942-8711.

Annual Report—Teaching

Membership

	Primary		Secondary	Tertiary	Total
	Regular	Associate	All	All	
1992	90	63	237	348	738
1993	87	64	240	362	753

The growth in secondary and tertiary memberships that occurred this past year is probably a reflection of the increased emphasis of the APS on teaching and the role of the Teaching Section in serving the Society as a whole. Given that APS is a research-oriented society, it is anticipated that the major growth of the Teaching Section will continue to be in the secondary and tertiary categories as members strive to pay more attention to the teaching role of our profession vis a vis recent educational objectives of the Society. Nevertheless, the Teaching Section should continue to provide an avenue of sectional affiliation for both regular and associate members who consider teaching as their major professional role.

Section Finances

1) Section Operating Budget Fiscal 1992:

APS Allocation	$500.00
Membership Capitation	$180.00
Total Income	$680.00

2) Restricted Teaching Section Fund:

corporate sponsors	$963.18
banquet (income, $950; expenses, $918)	$32.00

3) 1993 Budget

Projected to be $1,281 from the new formula of a $500 base plus $2 for each primary regular member plus $1 for each secondary and tertiary member.

Section Steering Committee

1992-1993

Office	Office Holder	Term Ends
Chair	Daniel Richardson	1993
PAC Member	Philip McHale	1994
Secretary	Richard Manalis	1995
Treasurer	Lois Jane Heller	1994
Councillor	Robert Carroll	1993

1993-1994

Chair	David S. Bruce	1996
PAC Member	Philip McHale	1994
Secretary	Richard Manalis	1995
Treasurer	Lois Jane Heller	1994
Councillor	Roger E. Thies	1995

Program Activities

FASEB 1992

Section Banquet: Sunday evening, April 5, 1992

Poster Discussion Session: Wednesday, April 8, 1992. Teaching Materials and Methods. Philip McHale, chair

Workshop: An Experience of Various Interactive Teaching Techniques. Roger Thies, chair

Computer Demonstration Area in the Exhibit Hall. Harold Modell, organizer

Experimental Biology '93

Section Banquet and Arthur Guyton Teacher of the Year Award: Sunday evening, March 28, 1993

Participation in High School Day: March 29, 1993. The Teaching Section provided 35 tour guides for this event.

Poster Discussion Session on Teaching of Physiology: March 29, 1993. Philip McHale and Roger Thies, chairs.

Other Activities

1) *Two-day workshop titled "Promoting Active Learning in the Science Classroom"*

Two years ago a subcommittee of the Teaching Section consisting of Harold Modell (chair), Joel Michael, and Daniel Richardson organized a workshop on active learning, which was subsequently supported by the New York Academy of Sciences. The workshop was held on February 13-14, 1993, in Lexington, KY. There were a total of 85 participants, and the proceedings of the workshop will be published in the *Annals of the New York Academy of Sciences.*

2) *Teacher of the Year Award*

Last year an ad hoc committee of the Teaching Section consisting of Roger Thies (chair), Allen Rovick, and David Bruce organized a Teacher of the Year Award aimed at identifying and awarding the APS member judged to be the year's best teacher. The committee was successful in obtaining financial support from W. B. Saunders Company in the amount of $1,000 to the recipient in addition to an awards plaque plus an additional $900 to offset travel expenses to Experimental Biology '93. The award has been named the Arthur C. Guyton Physiology Teacher of the Year Award. A total of six very excellent nominations were submitted to the committee from the APS membership, and of these the one selected to receive the award was Linda Costanzo of the Medical College of Virginia (see p. 137). The award was presented to her at the Section dinner in New Orleans after an address by Arthur Guyton, who discussed the history of his textbooks.

3) *Interactions with undergraduate physiology teaching societies*

Interactions with undergraduate organizations such as HAPS (Human Anatomy and Physiology Society) are an in-

tegral part of Teaching Section activities and an official duty of the Teaching Section Councillor. This past year the Teaching Section Councillor, Robert Carroll, attended the 1992 meeting of HAPS where he presented a workshop on active learning. In addition, Rob Carroll, Frank Powell (chair, APS Education Committee), and Norman Staub (APS President) met with the HAPS leadership to discuss ways in which the two organizations can interact. Relevant to this, the Teaching Section and the Education Committee are tentatively planning a concept-based vs. organ-based course for the 1994 HAPS meeting.

4) *Interactions with the APS Education Committee*

At the FASEB 1992 meeting, the chairs of the Education Committee and the Teaching Section decided that these two groups should work together toward implementing the APS education objectives. Accordingly the first joint meeting between the Teaching Section and the Education Committee took place on April 28 in New Orleans. After discussion of several options for specific action, it was decided that we would work toward reactivating the refresher course series that was popular in the old APS fall meetings. Our target is to co-sponsor a refresher course on gastrointestinal physiology at Experimental Biology '95. Specific details will be worked out in due time, but fundamentally the course will consist of an update on a subdiscipline in physiology (the old format) plus a discussion as to how the new material can best be taught (a new format). Thought was also given to offering teaching sessions at the APS specialty conferences that would deal with ways to teach the new science being discussed. Finally we brainstormed on ideas as to how to promote public literacy in physiology, the appreciation of physiology in other sciences and physiology at the K–12 level. It is anticipated that some of these ideas will be solidified into plans of action at future meetings of the Teaching Section and Education Committee.

Advances in Physiology Education

The editor, Penny Hansen, has reorganized the journal into several peer-reviewed sections that address a variety of teaching issues. The journal will also include informational columns, such as book reviews, new software, etc. These changes, which will appear over the next several issues, are, to quote Penny, "designed to assist our individual growth as scholarly teachers and our collective development as a teaching profession."

Daniel Richardson, Chair

1993 Award Recipients

Henry Pickering Bowditch Lecture

Norman C. Staub with Claire M. Doerschuk (lecturer)

Walter B. Cannon Lecture

Stanley G. Schultz with Gerhard Giebisch (lecturer)

Space Life Sciences Lecture

V. Reggie Edgerton (lecturer) with John B. West

1993 NIDDK Travel Program

The APS, with support from the National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK), awarded travel fellowships to 24 underrepresented minorities to attend the annual spring APS/Experimental Biology meeting. The APS/NIDDK program, which has been in existence since 1987, provides awardees with reimbursement for transportation, meals, and lodging. Each Fellow is assigned to an individual mentor who guides the Fellow through the meeting and introduces him/her to leading scientists. The culmination of the Fellows' participation is a closing luncheon to review the week's scientific activities and to hear an APS member discuss his/her research. Roy Elizondo, University of Texas, El Paso, spoke to the fellows about his career.

For the March 1993 meeting in New Orleans, the Society received applications from 39 candidates. Table 1 provides a breakdown of the minority and academic status of the applicants and awardees. Twenty-two applicants identified themselves as African American and 12 identified themselves as Hispanic. Of the 24 awardees, 7 identified themselves as Hispanic and 16 identified themselves as African American. The 1993 Spring Meeting Awardees were

Francis N. Bosah, Morehouse School of Medicine
Amadou Camara, Medical College of Wisconsin
Heidi L. Collins, Northeast Ohio University
Jacqueline S. Foster, Temple University
Carlotta E. Groves, University of Arizona
Michael Pak Lin Harris, Duke University
Cynthia Ann Jackson, University of California, La Jolla
Anthony B. Madison, University of Tennessee
Patricia A. Marks, University of Arizona
Carla S. McKinney, Wayne State University
Ronald K. McMillon, University of South Alabama
Gilsa Melendez-Padilla, University of Medicine & Dentistry of NJ, Newark
Enchanta L. Murphy, Xavier University of Louisiana
Nomeli Nunez Paniagua, University of California, Santa Cruz
Lloyd S. Pena, California State University
Elizabeth S. Quintana, New Mexico State University
Fernando Rodriguez-Rodriguez, Ponce School of Medicine, Puerto Rico
Pamela Johnson Rowsey, University of Michigan
John L. Sanders, Sinsheimer Laboratories, Santa Cruz, CA
Arnold L. Silva, University of Arizona
Corrigan T. Smothers, Meharry Medical College
Mechelle E. Taylor, Meharry Medical College
Alice Renee Villalobos, University of Arizona
Oristyne E. Walker, University of Tennessee

Table 1. NIDDK Applicants: Minority and Acdemic Status of NIDDK Applicants and Awardees

	Applicants		Awardees	
	Male	Female	Male	Female
Hispanic				
Undergraduate student	1	3	0	1
Graduate student	2	3	2	3
Postdoctoral	1	0	1	0
Faculty	2	0	0	0
African American				
Undergraduate student	2	5	2	2
Graduate student	6	4	5	4
Postdoctoral	1	1	0	1
Faculty	3	2	0	2
Pacific Islander				
Undergraduate student	0	1	0	0
Graduate student	0	1	0	1
Postdoctoral	0	0	0	0
Faculty	0	0	0	0
Asian				
Undergraduate student	1	0	0	0
Total	19	20	10	14

1993 NIDDK Fellows.

Procter & Gamble Professional Opportunity Awards

Procter & Gamble Professional Opportunity Awardees

As a result of a generous contribution provided by the Procter & Gamble Company, the APS has been able to recognize the contributions of predoctoral students to the science of physiology. Awarded by the 12 Sections of the Society, based on the number of abstracts submitted by predoctoral students, P&G Professional Opportunity Awardees receive a certificate, $500, and complimentary registration for the meeting. The 17 awardees for the 1993 meeting were

Cardiovascular Section
- Olga Cabello, Baylor College of Medicine, Houston, TX
- Meng Chen, Medical College of Pennsylvania, Philadelphia
- Howard W. Sill, Pennsylvania State University, University Park
- Desuo Wang, University of Florida, Gainesville

Cell and General Physiology Section
- Vikas Kundra, Harvard Medical School, Boston, MA
- D. G. Welsh, University of Guelph, Ontario, Canada

Central Nervous System Section
- Richard J. Schuerger, Eye & Ear Institute of Pittsburgh, Pittsburgh, PA

Comparative Physiology Section
- Colleen Talbot, University of Chicago, Chicago, IL

Endocrinology and Metabolism Section
- Marianthe Hamilton-Wessler, University of Southern California, Los Angeles

Environmental and Exercise Physiology Section
- Craig Crandall, Texas College of Osteopathic Medicine, Fort Worth

Gastrointestinal Physiology Section
- Pingbo Huang, University of Cincinnati, Cincinnati, OH

Neural Control and Autonomic Regulation Section
- Kira Bacal, Baylor College of Medicine, Houston, TX
- Ann Motekaitis, University of California, Davis

Renal Physiology Section
- Bruns A. Watts III, University of Texas, Galveston

Respiration Section
- Cara Geary, University of North Carolina, Chapel Hill
- Penny R. Kuhn, University of North Dakota, Grand Forks

Water and Electrolyte Homeostatis Section
- Fred C. Wilkins, University of Mississippi, Jackson

Caroline tum Suden Professional Opportunity Awards

H. Carey, chair of Women in Physiology Committee, and President S. G. Schultz presenting awards to Gerard D'Angelo (Univ. of Vermont, Burlington), Robin L. Davisson (Univ. of Iowa, Iowa City), Jeffrey P. Gaboury (Univ. of Calgary, AB, Canada), Suzanne G. Greenberg (Univ. of Michigan, Ann Arbor), Samantha P. Harris (Univ. of Michigan, Ann Arbor), Nancy L. Kanagy (Univ. of Michigan, Ann Arbor), Diane H. Munzenmaier (Medical College of Wisconsin), Corinn M. Pawloski-Dahm (Emory Univ., Atlanta, GA), Lynn E. Schlanger (Emory Univ., Atlanta, GA), Irene C. Solomon (Univ. of California, Davis), Annette M. Von Thun (Tulane Univ., New Orleans, LA), and Joanne K. Zaleski (Univ. of Alabama, Birmingham).

Awards

APS and Section Awards

Society Awards

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 methodolgies 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.

For additional information about this new award program, contact Martin Frank, Executive Director, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814.

Caroline tum Suden Professional Opportunity Awards

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

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 their research program. Awards do not include any indirect cost reimbursement.

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

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

For information about application procedures, contact Martin Frank, Executive Director, American Physiological Society, 9650, Rockville Pike, Bethesda, MD 20814. Tel: (301) 530-7118.

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 (MBRP) 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 Fellowship

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

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

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

Orr E. Reynolds History Award

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

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

The awardee will receive $500 plus expenses to attend the annual spring Experimental Biology meeting. If the awardee wishes, and there is a suitable place on the program, an oral presentation will be made at the Experimental Biology meeting or a subsequent conference at the beginning of 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, by December 1. The recipient of the award will be announced at the Experimental Biology meeting.

Section Awards

Procter & Gamble Professional Opportunity Awards

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

Cardiovascular

The Cardiovascular Section presents three annual awards—Fellowship, the Lamport Award, and the Carl J. Wiggers Award. Nominations for **Fellowship Awards** must be made by at least two existing fellows with supporting letters sent to the steering committee for vote. The total number of fellows cannot exceed 5% of the APS regular members who have published meritorious research in cardiovascular physiology. 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 the Wiggers awardee of the previous year. 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.

Central Nervous System

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

Comparative Physiology

The Comparative Physiology Section **Scholander Award** is presented annually to recognize an outstanding young investigator presenting a papers as first author in a comparative physiology slide session at the spring Experimental Biology meeting. Candidates must be graduate students or postdoctoral fellows, not more than five years beyond their highest degrees. The recipient receives a cash award of $100 and a certificate from the APS.

Environmental and Exercise Physiology

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

Gastrointestinal Physiology

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

Renal Physiology

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

Teaching of Physiology

The Teaching of Physiology Section of the American Physiological Society 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 of graduate students in a research laboratory. Each nominee must be nominated by a member of APS. The nominator is responsible for completing application materials and forwarding three copies to the chairperson of the Award Selection Committe. The deadline for receipt of applications is November 30.

The person selected will receive the award at the banquet of the Teaching of Physiology Section at the spring Experimental Biology meeting. The Teacher of the Year will receive a certificate, an honorarium of $1,000, and expenses of up to $900 to attend the meeting.

Congressman Speaks Out

Representative John Boehner (R-Ohio) made a statement in the *Congressional Record* of May 17 denouncing the vandalism against the homes of five researchers in the Maryland suburbs that was committed as part of World Laboratory Animal Liberation Week this year. The APS wrote to Rep. Boehner thanking him for taking a stand on this issue.

Representatives Ask USDA to Appeal

Thirteen members of the House of Representatives sent a letter to Secretary of Agriculture Mike Espy urging that the department appeal the decision handed down by US district Court Judge Charles R. Richey in Animal Legal Defense Fund et al. v. Secretary of Agriculture et al. The decision would strike down existing Animal Welfare Act regulations dealing with size of primary enclosures for a number of species, exercise for dogs, and the psychological well-being of primates. The Department has thus far filed only a protective appeal. The Representatives urged Espy to pursue the appeal to preserve the regulations the USDA developed with extensive input from veterinarians, laboratory animal care experts, researchers, and the Public Health Service.

Foreign Scientist Controversy

The APS has urged the US Department of Labor to reexamine the basis for its actions before proceeding with a plan to simplify the labor certification process for foreign scientists seeking work in certain states. In a notice published in the March 19, 1993 *Federal Register*, the Labor Department's Employment and Training Administration announced a pilot program based on a study that found a shortage of biological scientists, including physiologists, in 17 states. Using labor market surveys for the period 1986–1989, the study concluded that there was a shortage of biological scientists in California, Connecticut, Illinois, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Missouri, Nebraska, New Jersey, New York, Ohio, Pennsylvania, Tennessee, Texas, and Washington. The APS letter emphasized that this reputed shortage "is not consistent with reality as reported by APS members" and noted that the data are outdated because of changes in the job market due to a decrease in biological research funding available since the period studied.

Trust Fund Proposed

Senators Tom Harkin (D-Iowa) and Mark Hatfield (R-Oregon) held a press conference May 27 to announce a proposal for a $5-per-month surcharge be added to all health insurance policies to create a trust fund that can supplement the NIH appropriation. "Without question, medical research is key to eliminating disease and making a health care system less costly and more effective," Harkin told the press conference. Hatfield cautioned that an "anti-substitute" provision would also have to be approved so that Congress would not reduce the NIH appropriation by whatever amount was made available through the trust fund.

Reaction to the proposal has been mixed. Outgoing NIH Director Bernadine Healy called the proposal "seductive in the short-run; treacherous in the long-run." Speaking at a June 3 meeting of the Ad Hoc Group on Medical Research Funding, Healy pointed out that every trust fund created by the federal government has run into financial trouble. Healy said that the real problem is that research has not been central to the health care reform debate.

Federal Appointments

President Clinton selected Kristine Gebbie as the first White House AIDS policy coordinator. Gebbie is a former nursing professor who was secretary of the Washington State Department of Health until she resigned this spring to become a special consultant to the federal Department of Health and Human Services. She has served as a member of the Presidential Commission on AIDS and the AIDS Oversight Committee of the National Academy of Sciences, and has chaired the CDC Advisory Committee on Prevention of HIV Infection and the HIV committee of state health officials. Gebbie will be a member of the White House Domestic Policy Council and will coordinate AIDS policies among all executive branch departments.

Donald A. Henderson has been named as deputy assistant secretary for health and science in the Department of Health and Human Services. Henderson previously served as associate director for life sciences at the White House Office of Science and Technology Policy. He is also a former dean of the Johns Hopkins School of Hygiene and Public and a former director of the World Health Organization's campaign against smallpox.

Roger Herdman has been named as Director of the Office of Technology Assessment. Herdman succeeds John Gibbons, who was named by President Clinton as his science advisor. Herdman served as director of OTA's Health and Life Sciences Division for nine years and becames its acting director in January when Gibbons left.

Animal Research Briefs

PETA contacts IACUC Chairs: PETA National Director Ingrid Newkirk has apparently sent a form letter to chairs of a number of institutional animal care and use committees (IACUCs) urging them to "use [their] authority to reject proposed or ongoing experiments which cause unalleviated animal suffering." The letters appear to have been sent to all institutions whose 1991 annual report to the USDA (APHIS Form 7023) indicated that they had approved research procedures that caused pain or distress and for which pain-relieving drugs could not be administered because they "would have adversely affected the procedures, results, or interpretation." The information in those reports is available to the public. The USDA summary report for 1991 indicated that 6% of all animals reported were used in that category of experiments. Enclosed with Newkirk's letter were articles by David G. Porter and Barbara Orlans describing invasiveness scales to rate pain and/or stress. The letter recommends that the IACUC use those scales and asks the IACUC chair about whether the experiments in question are still underway.

EC extends animal tests: The Internal Market Council of the European Economic Community adopted a proposal June 14 that will make it possible to continue animal product testing indefinitely if validated alternative methods are not found before the original 1998 deadline to end animal testing. The Council's action was a rejection of a proposal adopted by the European Parliament that would have prevented any delay in implementing the ban.

Bibliography: The winter 1992 edition of the annotated bibliography *Alternatives to the Use of Live Vertebrates in Biomedical Research and Testing* has been published by the Toxicology Information Program of the National Library of Medicine. To subscribe to this quarterly publication, contact Arthur A. Wykes, NLM Specialized Information Services, Office of Hazardous Substances Information, Building 38A, Room 5S-516, 8600 Rockville Pike, Bethesda, MD 20894. Tel: (301) 496-5022; fax: (301) 480-3537.

British posters: The Research Defence Society of Great Britain has published a series of posters that have been distributed to hospitals and medical schools for display in public waiting areas. One poster features a photograph of Maria, a seven-year-old girl who suffers from chronic active autoimmune hepatitis, and her mother. Below the photograph are the words "Animal Research Helped Save My Daughter's Life." Surrounding the photograph is a lengthy quote that begins with the words "You always think, 'it'll never be my daughter.' " A second poster highlights the large numbers of people in the UK last year who benefitted from animal research through heart transplants, artificial heart valves, coronary bypass surgery, insulin treatment for diabetes, operations conducted under general or local anesthesia, and through prescriptions for asthma medications and for antibiotics. The third poster in the series features the words "Arthritis" and "Cancer" in extra large type against a plan background under which is the caption, "Two reasons why we need to use animals in medical research."

Wright State Investigation: The Greene County (Ohio) Prosecutor announced plans to review complaints by animal rights groups against Wright State University's animal research program in the wake of NIH and USDA investigations. The report criticized the university's record-keeping and other procedures and found that lab supervisors had killed a pig and some rabbits by striking them on the head.

The head of the Wright State University Laboratory Animal Resource (LAR) unit stepped down May 26 after reviewing the federal report that resulted from an investigation invited by the university after charges of animal cruelty were made by PETA member Virginia Bollinger. Bollinger went "undercover" to work at the LAR after a former WSU employee complained to PETA last August. She was dismissed from her job in October after another employee reported seeing her remove records from the LAR. Bollinger complained about the treatment of dogs and rabbits used in research to develop a vaccine against scabies.

PETA called in ALF Probe: The *Moscow-Pullman Daily News* has reported that a US magistrate in Michigan has ordered PETA to provide the names and addresses of its employees and volunteers to a grand jury that is investigating ALF vandalism. Journalist Ken Olsen reported that according to court documents, federal investigators believe that the same individuals are responsible for six break-ins that took place between June 1991 and October 1992 in Michigan, Oregon, Utah, and Washington, and they also believe that those people have some connection to PETA. PETA agreed to provide the names of its employees by mid-July but said it would refuse to supply the names of its volunteers.

Torricelli reintroduces antiduplication measure: New Jersey Representative Robert Torricelli has again introduced a bill to end unnecessary duplication of research involving live animals by requiring a comprehensive, full-text literature search of all research conducted since 1960. The bill, similar to legislation Torricelli has introduced several times during the last decade, would establish a National Center for Research Accountability at the National Library of Medicine. The NCRA would be charged with acquiring and disseminating these research texts and would also be required to conduct literature searches before final approval could be granted for federally funded research involving the use of live animals.

NIH Notes

Study sections threatened: APS President William Dantzler wrote to Office of Management and Budget Director Leon Panetta urging him to exempt NIH's Initial Review Groups from a proposal to streamline government that could result in the elimination of one-third of all study sections. President Clinton's February 10, 1993 Executive Order requires all federal agencies to reduce by a third all advisory bodies unless they are mandated by law.

"Although the nearly 200 NIH study sections are not individually chartered in statute, the role of the IRG in reviewing the scientific merit of applications for NIH grant support is set forth in the Public Service Act," Dantzler wrote. The elimination of one-third of all study sections would be a "draconian" measure that would deprive NIH of the "breadth of scientific expertise" the agency needs, he added, pointing out also that the remaining study sections would be "impossibly overburdened."

NCRR Strategic Plan: The APS provided comments to the National Center for Research Resources (NCRR) for its strategic plan. "The NCRR has a diverse portfolio of important programs, and because of that diversity, a strategic planning exercise is bound to be difficult," APS wrote. "The Society urges NCRR to continue its unique mission, including support for the Regional Primate Centers, Laboratory Animal Science Program, and the various elements of the Biomedical Research Support Program."

ORI Publishes Findings: The Public Health Service's Office of Research Integrity (ORI) has begun publishing the names of researchers against whom there has been a finding of misconduct with administrative action taken. The names of 14 scientists plus the findings against them and administrative actions taken were published in the June 21 *Federal Register.* The findings included plagiarism of grant application, falsified and fabricated data, falsified data collection methodology, and falsified grant progress reports. These cases were all completed after ORI was created on May 29, 1992. In the future, ORI plans to publish notices individually as cases are closed.

Grant Supplements: Applications for the restoration of grants funds deleted administratively by the funding component will generally not be accepted for review unless they have been substantially changed from the original submission, according to a notice in the April 30 *NIH Guide to Grants and Contracts.* Questions or comments about this policy may be directed to Samuel Joseloff at (301) 594-7248.

P01s Phased Out: Most of the NIH institutes, centers, and divisions have followed the lead of the National Cancer Institute in replacing the program project grant (P01) with a new mechanism for collaborative work, the "investigator-initiated interactive research project grants." According to an announcement in the April 23 *NIH Guide to Grants and Contracts*, two or more investigators who wish to undertake research in which there will be an exchange of data, materials, and ideas without a significant sharing of physical resources and facilities should submit concurrent and cross-referenced R01 or R29 applications. The proposals will be reviewed independently for scientific merit and then will be considered for funding both as an individual award and as part of the proposed collaboration.

"Fraudbuster" breaks fast: "Fraudbuster" Walter Stewart went on a hunger strike that lasted 33 days from mid-May to mid-June after he and Ned Feder were reassigned other duties for using their computer program for detecting plagiarism on a biograpy of Abraham Lincoln. Stewart broke his fast after Arkansas Senator David Pryor wrote a letter to HHS General Counsel Harriet Raab on his and Feder's behalf.

Roundup of State Animal Legislation

This update on bills that would affect the use of animals in research, education, and testing was provided by the Foundation for Biomedical Research. It includes bills introduced in 1993, as well as legislation carried over from 1992.

Florida, Maine, and New Hampshire have all approved **facility protection bills**.

Bills to **restrict the availability of animals for research** have been introduced in Illinois, Massachusetts, New York, New Jersey, and Washington. The Illinois bill (HB 182) would allow pound animals to be sold for research but requires new regulations of the procedures involved. The bill passed the Illinois House on April 13 and is now pending in the Senate Rules Committee.

A hearing on two Massachusetts bills was held April 1. Massachusetts already bans the use of pound animals, whether supplied from in-state or from outside. The two bills under consideration are sponsored by the Massachusetts Society for Prevention of Cruelty to Animals to end so-called "puppy mills." SB 976 would prohibit the importation of dogs under 12 weeks for "commercial purposes," which would include private pharmaceutical manufacturers but not non-profit research. HB 2458 would prohibit any entity except humane societies from selling dogs or cats younger than 8 weeks of age. It should be noted, however, that humane societies

in Massachusetts refuse to sell animals for research. Language to ensure continued availability of animals for research has been urged by the Massachusetts Society for Medical Research.

Companion bills (AB 363 and SB 237) that were introduced January 6 in the New York legislature would prohibit importing animals into the state for research, experimentation, testing, teaching, demonstration, or surgical practice. The bills are pending before the Assembly and Senate Agricultural Committees.

In New Jersey, a bill introduced in 1992 is still pending before the Assembly's Environment Committee that would prohibit the sale, supply, or receipt of dogs or cats unless provided by an entity registered with the USDA under the federal Animal Welfare Act.

The Washington state legislature failed to act on a measure (SB 5832) that would have required animal shelters, pounds, and similar facilities that received local, state, or federal funding to place animals with medical research facilities or commercial establishments. Although the pounds and shelters could not refuse to make such placements, animal owners were granted the right to state their preference that their animals be euthanized rather than placed with a research institution.

The states of Massachusetts, New Jersey, New York, and Vermont are considering a total of 11 bills that would either **regulate the use of dissection** in grades K–12 or give students various forms of recourse if they objected to dissection. A bill to grant K–12th grade students the right to "conscientiously" object to dissection or other classroom activities that might "harm or destroy animals" was defeated in the Rhode Island Senate on April 20.

Bills that would restrict **product safety testing** by prohibiting the use of the LD50 or eye irritancy tests for cosmetics or household products have been introduced in Massachusetts, New York, and Vermont. Similar legislation did not receive enough votes in committee to receive consideration in the Illinois and Connecticut legislatures.

Acting Director of NIH Named

On July 1 Ruth Kirschstein became acting Director of the NIH, replacing Bernadine Healy. The appointment was announced in a statement issued by HHS Acting Assistant Secretary for Health Audrey F. Manley on June 30. Manley also announced that Kirschstein was being reassigned to the permanent position of Deputy Director of NIH. Kirschstein had been the director of the National Institute of General Medical Sciences since 1974. Although there had been much speculation during the preceding weeks about who would be named to be Healy's permanent replacement as NIH director, no announcement was made prior to her departure.

White House On-Line

The White House is now ready to hear from citizens via electronic mail on the Internet and through commercial networks such as Compuserve. Internet messages for President Clinton can be sent to PRESIDENT@WHITEHOUSE.GOV, and messages for Vice President Gore can be sent to VICE.PRESIDENT@WHITEHOUSE. GOV.

Scientists Are Parents, Too!

Do you keep track of what your child is learning about science?

What do your child's textbooks say about the use of animals in biomedical research? What about other educational materials used in the classroom or library? APS is interested in collecting examples of exceptionally good or bad materials. Send them to Alice Hellerstein, APS Public Affairs Officer, 9650 Rockville Pike, Bethesda, MD 20814.

In Support of Basic Research

As the 20th century draws to a close, the United States is reaping the benefits of a half-century of extraordinary scientific and technological progress. The development of drugs and vaccines allows us to treat or prevent many once devastating diseases; agriculture has been made unimaginably productive; entire industries, such as semiconductor manufacturing, have arisen; work and leisure have been remade; and vast quantities of information now flow freely around the globe.

Each of these transforming advances has its origin in a wide array of discoveries made by scientists, engineers, and mathematicians pursuing a deeper understanding of the world we live in. Using fundamental methods of scientific inquiry, these men and women have reshaped our world. This endeavor is basic research.

Basic research can be conducted in many settings: by individual investigators in colleges and universities or by groups of researchers working in scientific and engineering centers; by those pursuing a particular national strategic research interest; and by those in corporate and Federal laboratories, often in collaboration with academic scientists.

In the 21st century, our quality of life will depend in large measure on the generation of new wealth. Basic research, the underpinning of the scientific enterprise, will play a vital role in this process. As stated in a recent White House report, ". . . scientific advances are the wellspring of the technical innovations whose benefits are seen in economic growth, improved health care, and many other areas."[1] Appropriately, the Administration has made continued world leadership in basic science, mathematics, and engineering a centerpiece of its strategy to revitalize the nation and to insure its well-being. Maintaining this leadership is a special responsibility of the National Science Foundation.

Challenged by a profoundly altered economic and political environment, the National Science Board established a special Commission on the Future of the National Science Foundation. The Commission's report affirmed the vitality of NSF's mission and underscored the critical importance of research and of an educated work force in advancing the national interest.[2] This statement responds to the specific Commission recommendations that the Board reaffirm the role of the National Science Foundation in the support of the US research system, and that the Board exercise leadership over a broader range of science and technology policy issues.

The conduct of basic research is international in character and, in today's global environment, its benefits are widely shared by all nations. At the same time, America's economic competitiveness relies on the ability to exploit scientific and technological advance. The country in which a discovery is made has an enormous initial advantage in exploiting such advances in understanding. Furthermore, by maintaining strength in a variety of basic research fields, we will be positioned to benefit from the breakthroughs made by investigators in other parts of the world.

The commission's report noted that research can be undertaken both to achieve strategic ends and to increase the basic of knowledge. Basic research is the foundation and essence of both, assuring a deep reservoir of knowledge and providing choices and flexibility for addressing future needs. Moreover, in the age of technology, the problem solving approach of basic research helps prepare minds for work in all walks of life.

The new century will impose new demands and responsibilities on all who have a stake in the discovery and application of knowledge. The nation's superb research system must continue to respond to new intellectual opportunities and to devise new instruments and approaches for performing its work. The variety of institutional arrangements within which research takes place must continue to expand, complementing the activities of the individual investigator with complex multidisciplinary teams of researchers.

Basic research is one of many forces that contribute to the nation's economic development. Its benefits will be achieved only in connection with other parts of the nation's scientific and technological enterprise, including applied research, education, technology transfer and development, innovation, and manufacturing. More effective and focused partnerships among all sectors will be needed to secure the greatest possible benefit from the nation's investment in the discovery of fundamental knowledge.

Basic research is not intended—nor should it be expected—to advance short-term goals. Rather, it is an investment that, like education, takes time to mature but has tremendous practical payoffs in the long run.. Assuring the knowledge base appropriate for economic growth, long term job creation, and social well being requires a conscious commitment to strong and consistent long term support for basic research and education. Providing requisite support for this process is a matter of strategic national importance.

1. Technology for America's Economic Growth. A New Direction to Build Economic Strength. Washington, DC, 1993, p. 24.

2. National Science Board Commission on the Future of the National Science Foundation. A Foundation for the 21st Century: A Progressive Framework for the National Science Foundation. Washington, DC, November 20, 1992.

Know Your Sustaining Associates

Abbott Laboratories

Abbott Laboratories is a worldwide company devoted to the discovery, development, manufacture, and sale of a broad and diversified line of human health care products and services. Abbott innovations include Nembutal and Pentothal anesthetics, the Erythrocin line of antibiotics, and Ausria and Auszyme diagnostic kits for hepatitis B, the first US licensed AIDS virus antibody detection kit, Similac and Isomil infant formula, the TDx drug detection system, and the ADD-Vantage drug delivery system. Abbott's commitment to the future is evident in its $500 million dollars spent on research and development in 1989 and an annual compound growth rate in R&D spending over past 5 years of 20%.

American Medical Association

The American Medical Association promotes the art and science of medicine and the betterment of public health. The AMA accomplishes this mission by advancing standards of medical education, promoting support for biomedical research, representing the medical profession, providing information about medical matters, and upholding professional conduct and performance.

Axon Instruments, Inc.

Axon Instruments, Inc. designs and manufactures instruments and software for electrophysiology. Axon Instruments produces full-featured amplifiers for single-channel and whole-cell patch clamp and for single and two-electrode current/voltage clamp applications. These hardware products are supported with PC and Macintosh software and acquisition hardware for the acquisition and analysis of biophysical data. The latest products are the CyberAmp series of general-purpose analog signal conditioners. They provide up to eight channels of computer-controlled adjustment of gain, offset, and low-pass Bessel filtering. Virtually any type of transducer can be adapted for the CyberAmp. The computer can instantly determine the scaling and units of each transducer. Support for the CyberAmps is provided by software from Axon Instruments and others. The CyberAmp used in conjunction with Axotape software and TL-1-125 acquisition hardware makes a complete computer-based chart recorder system.

Berlex Laboratories, Inc.

Berlex Laboratories is a US subsidiary of the multinational pharmaceutical and chemical firm Schering AG West Germany (not connected with Schering-Plough Corp. or Schering Corp. of New Jersey). It conducts research and markets prescription drug products primarily for cardiovascular, diagnostic imaging, metabolic, endocrine, and central nervous system uses.

Coulbourn Instruments, Inc.

Coulbourn Instruments, Inc. manufactures electronic instruments for in vivo life science applications. Products include the LabLinc Modular Instrument System for physiological signal conditioning, experiment control, and data acquisition, featuring over 100 modules, including computer interface ports, signal conditioning and processing, and counting and timing modules for chart and computer-based polygraphs.

The company also produces transducers, biotelemetry, signal processors, stimulators, and auditory and animal behavior test equipment. Major markets include pharmaceutical, chemical, and biotechnological firms, universities, research hospitals, and government laboratories.

Dagan Corporation

Dagan Corporation manufactures electronic instruments used in electrophysiology. Dagan offers a full line of analog and digital products, including preamplifiers for use in intracellular and extracellular recording, single and two electrode voltage/current clamps, patch clamps, signal averagers, programmable multichannel stimulators, and iontophoresis generators.

Du Pont Pharmaceuticals

Du Pont Pharmaceuticals is a part of the Du Pont Company, a diversified international corporation. Located in Wilmington, Du Pont Pharmaceuticals is a research-intensive firm whose major products are used to combat cardiovascular diseases, pain, and viral diseases. It is also a leading manufacturer of radiopharmaceuticals.

Major products include Coumadin, Sinemet, Percodan, Percocet, and thallium.

Primary areas of research are medicines for cardiovascular illnesses, inflammatory diseases, central nervous system disorders, and viral illnesses.

Fisons Pharmaceuticals

The Pharmaceutical Division of Fisons is an international research-based pharmaceutical company committed to provide excellent health care products for prescription and consumer use. Fisons develops and manufactures a wide variety of pharmaceutical products, with markets in more than 100 countries. Fisons is recognized as a world leader in the treatment of respiratory problems and allergies and also markets products for cardiovascular disorders, neurological diseases, and dermatological problems. Fisons has a major commitment to research and development to generate superior future medicines for these and other therapeutic areas including immunological and metabolic diseases.

Genentech, Inc.

Genentech, Inc., founded in 1976, is a leading biotechnology company focusing on the development, manufacture, and marketing of pharmaceuticals produced by recombinant DNA technology. Four approved therapies derived from biotechnology were pioneered by Genentech: human insulin, alpha interferon, human growth hormone, and recombinant tissue plasminogen activator.

Glaxo

Glaxo is a leading research-based pharmaceutical company. At its US research site in North Carolina, Glaxo has basic and applied research programs in cancer, inflammation, diabetes, osteoporosis, and obesity. Glaxo supports a wide range of related research in university and research institute departments, as well as in-house postdoctoral programs.

Grass Foundation

The Grass Foundation underwrites the annual Walter B. Cannon Lectureship given at the spring meeting of the American Physiological Society. The naming of this lectureship serves two functions: to commemorate the enormous contribution of Cannon to the growth of knowledge of physiology and to pay a tribute to Cannon on behalf of many of the founding trustees of the Grass Foundation who were members of his research group at Harvard Medical School early in their careers.

This lectureship is in accordance with the Grass Foundation's charter mandate to support research and education in neurophysiology. Other programs include funding for other annual and visiting lectureships, summer fellowship support for young students, and occasional relevant course support.

Harvard Apparatus

Harvard Apparatus, since its inception in 1904 at the Harvard Medical School, continues to design, develop, and supply the unique apparatus that has shaped the development of teaching and research in physiology and allied science, including syringe peristaltic and respiration pumps, recording systems, and research accessories.

ICI Pharmaceuticals Group

The ICI Pharmaceuticals Group R&D facility is based in Wilmington, Delaware. It consists of about 700 staff, of whom about 170 are in drug discovery. Within ICI, the US drug discovery function has sole responsibility for discovering new drugs in the pulmonary and CNS therapeutic areas. Current CNS targets are nondyskinetic antipsychotic drugs, disease-modifying drugs for Alzheimer's disease, and drugs for cerebral stroke and ischemia. The entire gamut of experimental approaches is available, including biochemical, neurochemical, electrophysiological, histochemical, and behavioral. Subserving the discovery efforts are a Molecular Pharmacology Unit at Wilmington and a Biotechnology Department in ICI-UK.

Jandel Scientific

Jandel Scientific designs and sells IBM-compatible software for scientific research. Products include Sigma-Plot for publication-quality scientific graphs (with automatic error bars, regression lines, and many other scientific graphing options); Sigma-Scan for x-y digitizing, morphometric measurement, and analysis; and PC3D for generating three-dimensional reconstructions of objects from serial sections. JAVA, the latest product, is a video analysis system capable of image processing, densitometry, automatic object counting and edge tracking, and morphometric measurement. JAVA works with a video digitizing board and input from a video camera, VCR, or other video source.

Janssen Research Foundation

Janssen Pharmaceutica was founded in Belgium in 1953 by Paul Janssen. It is now an international company built on the foundation of research and a bedrock of innovation. The company remains under the direction of Janssen and has an unparalleled record in the successful development and marketing of new pharmaceutical products. According to the Japan Drug Research

studies, Janssen was responsible for more significant new drug discoveries during the period 1970–1983 than any pharmaceutical company in the world.

The company currently has approximately 6,000 employees worldwide. It is a world leader in medication used in the treatment of allergies, mental disorders, digestive and intestinal problems, cardiovascular conditions, and worm and fungal infections. Janssen's compounds have also enabled major advances in anesthesia and immunology. In addition, Janssen has also discovered many chemical compounds to identify and characterize receptors in the brain and the periphery that have played a prominent role in advancing our knowledge about neurotransmitters.

The R. W. Johnson Pharmaceutical Research Institute

The R. W. Johnson Pharmaceutical Research Institute performs worldwide research and development work for Ortho Pharmaceutical Corporation, McNeil Pharmaceutical, Ortho Biotech, and Cilag—all part of the Johnson & Johnson family of companies. Inegrating R & D for these companies in a single coordinated unit enhances basic research capabilities and capitalizes on longstanding strengths in drug development.

Focusing on the therapeutic areas of immunology, oncology, fertility control, disease of women, infectious disease, central nervous system disorders, dermatology, imaging and vascuola biology, the R. W. Johnson Pharmaceutical Research Institute provides important drugs to the Johnson & Johnson operating companies it supports. Innovation in biotechnology, traditional pharmaceutical development, and rational drug design makes the R. W. Johnson Pharmaceutical Research Institute a significant contributor of products that enhance health and life for people worldwide.

Narco Bio-Systems

Narco Bio-Systems designs, manufactures, and distributes the Physiograph physiological recording systems for use in clinical, research, and teaching applications. A selection of multichannel chart recorders are available with a complete line of modular input preamplifiers, signal conditioners, transducers, and accessories. This allows maximum flexibility for designing systems for recording physiological functions.

Pharmacia Incorporated

Pharmacia is the world's leading supplier of separation and purification products for the biotechnology industry, as well as a research-intensive international manufacturer of products for use in areas of medicine, including gastroenterology, rheumatology, oncology, ophthalmology, blood volume replacement, allergy, and dermatology.

Procter & Gamble Co.

Procter & Gamble is a multinational, technically based consumer products corporation with operations in 28 states and 36 foreign countries. It has four technical centers, and its world headquarters are in Cincinnati, Ohio. Technical centers are also located in Egham and Newcastle, England; Brussels, Belgium; Schwalbach, Germany; and Osaka, Japan.

The worldwide PhD population of Procter & Gamble is 850, divided equally between chemists and life scientists, and total employees number 75,000.

Sales in the paper, soap and detergent, health care, personal care, pharmaceutical, beverage, and food categories make Procter & Gamble one of the largest US corporations. Fortune magazine has named Procter & Gamble as one of the most admired corporations in the United States.

Quaker Oats Company

The Quaker Oats Company is a leading consumer products company marketing both human and pet foods products around the world. The development of new food and beverage products and the refinement of existing Quaker products occurs in the laboratories of Quaker's Research and Development facility in Barrington, Illinois. Quaker food scientists, nutritionists, biochemists, and physiologists devote their energies to making certain that Quaker products meet the high standards consumers expect of The Quaker Oats Company.

Schering-Plough

Born out of a 1971 consolidation of two companies—Plough, Inc. and the Schering Corporation—Schering-Plough is dedicated to the discovery, development, and marketing of novel therapeutic entities. The company focused its research in the fields of anti-inflammatory, antiallergic, cardiovascular, and anti-infective disorders. The company has also attained a leading position in immunology and recombinant DNA technology.

SmithKline Beecham Pharmaceuticals

A division of Smith Kline Beckman Corporation, Smith Kline & French Laboratories is a technology-intensive, worldwide health care company. Smith Kline & French is a leading supplier of pharmaceuticals to treat infectious, gastrointestinal, cardiovascular, and arthritic diseases and a leader in research, development, and marketing of innovative medicines.

Squibb Corporation

Squibb Corporation, a leading worldwide developer, manufacturer, and marketer of pharmaceutical and allied health care products, is organized into the Squibb Operating Group and the Science and Technology Group.

The Squibb Operating Group is responsible for the manufacturing, marketing, and distribution of products and services. Squibb's pharmaceutical products are marketed by Squibb International and Squibb United States. The Medical Products segment consists of ConvaTec and the companies of Edward Weck Incorporated.

The Squibb Science and Technology Group is composed of The Squibb Institute for Medical Research, Worldwide Regulatory Affairs and Licensing. Celebrating its 50th anniversary in 1988, The Squibb Institute is among the nation's first industry-sponsored research centers. In recent years, it has focused on four main areas: 1) cardiovascular disease, 2) infectious disease, 3) diagnostics, and 4) inflammatory disease. It has recently broadened into molecular biology, the neurosciences, and metabolic disorders.

The Upjohn Company

The Upjohn Company, a multinational corporation headquartered in Kalamazoo, Michigan, has celebrated its centennial year as a maker of fine pharmaceuticals. It is one of the 15 largest research-based pharmaceutical manufacturers in the world. It has research, production, and warehousing facilities in more than 45 countries and its products are sold in more than 150 countries.

Upjohn has long been committed to the research, development, manufacture, and marketing of pharaceuticals. Human health care is the heart of Upjohn's endeavors.

Waverly Press

Waverly Press is a full-service publication printer specializing in journals and other periodicals. Committed to servicing its customers through sharing knowledge, providing the best of modern technology, and establishing mutual respect, Waverly Press offers a full range of publishing services including design, editing, composition, printing, binding, mailing and distribution, warehousing, subscription fulfillment, and ad sales.

Waverly practices team concept management. Both client and staff are part of the team. Through this management concept, each publication receives close personal attention.

Striving for excellence in the graphic arts industry is a tradition at Waverly Press—one that continues. Waverly believes in quality products and service through quality people.

Neurobiology of Motor Program Selection

Jenny Kien, Catherine McCrohan and William Winlow (Editors)
Pergamon Studies in Neuroscience No.4. William Winlow (Series Editor)
Oxford: Pergamon, 1992, 290 pp., illus., index, $140.00

One of the big promises made by invertebrate neurobiologists over 25 years ago was that the numerically simpler nervous systems they worked on could be analyzed at a level that might provide the neural basis for animal behavior. This challenge was usually accomplished by what is now referred to as a "top-down" approach. A particular behavior was carefully analyzed from an ethological point of view and its neural basis studied centripetally, from the periphery. This was in large measure due to the fact that it was more experimentally tractable to record from peripheral nerves and muscles, often while a behavior was occurring, than to find and record from neurons in the central nervous system that were actually controlling the motor pattern.

A major advance occurred in the late 1960s when Dennis Willows, then a graduate student with Graham Hoyle at the University of Oregon, demonstrated a technique to record intracellularly from central neurons of the marine mollusc *Tritonia Diomedia* by stabilizing the brain in a semi-intact animal. This opened the possibility of not only analyzing the circuitry within a ganglion but also being able to couple this information directly to behavior. It must be remembered that prior to this work, the central circuits were generally considered "black boxes" with only the input-output relationships known.

One of the most interesting results from the black box era was the finding by Case Wiersma at the California Institute of Technology that single fibers descending from the crayfish brain could activate complex behavior patterns, often involving hundreds of separate muscles. These axons became known as command fibers and provided a wonderfully simplistic mechanism for dealing with behavioral selection. It is really only over the last 10 years that it has become clear how complicated the process of motor program selection really is and how necessary a thorough reappraisal of it has become.

The authors of this volume have undertaken this ambitious task by examining the general problem at three levels. The first level looks at the cellular mechanisms involved in motor program selection by largely selecting invertebrate preparations for which a great deal is known about circuitry. While somewhat top heavy with *Lymnaea* papers, I found the chapters to be a tour de force for the value of invertebrate neurobiology and required reading for those seeking a more reductionist approach to the problem of behavioral choice. The chapter by Marder and Weimann is especially important in that it demonstrated clearly the flexibility present in neural circuits and how they can be dynamically altered by neuromodulators.

Part II deals with more distributed neural networks where much less is known about circuitry but hopefully much can be learned by means of neural modeling. While such approaches are promising, they are mostly inconclusive. They are especially worrisome when, as in the chapter by Kien and Altman, they substitute modeling for rigorous analysis of both motor output and synaptic interactions. If modeling can provide the rationale for doing the next experiment, as in the chapter by Kristan et al., it seems to me they have much greater value than in providing grand explanations.

The last section examines more complex behaviors in higher animals and while noble in effort seems a bit procrustian in result. This section nevertheless makes for extremely interesting reading and provides information not usually contained in books of this type. The marvelous discussion of the alien hand sign by Gary Goldberg was a pure joy to read.

Overall the book has some impressive strengths. It will bring the reader up to date in this field of study and suggests new ways of looking at the problem of motor control. The basis for a general shift away from the command fiber concept to more sophisticated mechanisms of behavioral choice is presented clearly. It is definitely worth having on ones bookshelf, but for the inexcusably exorbitant price of $140, I am uncertain how many neurobiologists will find it a good value for money.

Allen I. Salverston
University of California, San Diego

Signaling Mechanisms in Secretory and Immune Cells

J. R. Martinex, B. S. Edwards, and J. C. Seagrave (Editors).
San Francisco, CA: San Francisco Press, 1991, 133 pp., illus., index, $15.00

A role for cyclic adenosine monophosphate (cAMP) in mediating the cellular responses to external stimuli has long been established but the recognition of Ca^{2+}-based intracellular signaling is more recent. This development as been much accelerated by the availability of Ca^{2+}-sensitive dyes that can be readily introduced into most cell types and that allow the fluorometric measurement of changes in cytosolic Ca^{2+} concentration (Ca^{2+}_i) in single sells or in cell suspensions. These methods have shown that the use of Ca^{2+} as a cellular messenger is as widespread as that of cAMP and that, like cAMP, the general mechanisms of its cellular control are very similar in a wide variety of cell types.

This volume is a collection of 14 presentations made in September of 1990 at a conference sponsored by the Lovelace Medical Foundation in Albuquerque, NM. The papers deal with varied aspects of transmembrane signaling, the processes initiated by occupation of a plasma membrane receptor by which humoral, antigenic, or neurochemical stimuli alter target cell function. Most presentations deal with elements of cellular signaling by Ca^{2+} or cAMP and range from cell surface receptor characterization to products of the protein phosphorylation cascade. The scope of the articles varies greatly. Wide-ranging summaries are offered by M. L. Toews and colleagues on the classification and regulation of adrenergic receptors, by C. M. Fraser who discusses the structure of receptors coupled to guanine nucleotide-binding proteins, and in J. Fain's account of the regulation of phosphoinositide metabolism. A much narrower focus characterizes the contribution of L. A. Sklar and others, who have used flow cytometry and fluorometric methods to describe conformational changes and the binding site structure of the formyl peptide receptor of neutrophils.

Other presentations are intermediate in scope and comprise six studies of secretory cells and four of immune systems cells. Most of the secretory cell studies are devoted to exocrine glands and to aspects of their two principal second messenger systems: Ca^{2+} and

cAMP. O. H. Petersen and his colleagues describe microfluorometric measurements of oscillations in Ca^{2+}_i in mouse pancreatic acini. Electrophysiologic measurements are used to evaluate several models advanced to account for Ca^{2+} oscillations. I. Schulz and others describe different pools of stored Ca^{2+} in rat pancreatic acinar cells, which are distinguished by their sensitivity to inositol trisphosphate, to caffeine or Ca^{2+}, and to vanadate. They also recount the evidence that functional connections among those pools is mediated, in part, by guanosine triphosphate (GTP) and GTP-binding proteins. J. R. Martinez and co-workers summarize the evidence for a role for Ca^{2+} in submandibular gland acinar cell function, the sources of Ca^{2+} that increase Ca^{2+}_i during stimulation and some of the effects of changing cytosolic pH on acinar cell Ca^{2+} handling.

The role of cAMP in secretory cells is addressed by D. O. Quissel's characterization of proteins phosphorylated in a cAMP-dependent manner during β-adrenergic stimulation of parotid and submandibular glands. He also discusses the more limited evidence bearing on the role of protein kinase C in salivary gland exocytosis. The contribution of M. P. Anderson and J. J. Welsh deals with the regulation of apical membrane Cl channels in epithelial cells from airways of persons with cystic fibrosis and from healthy individuals. They cite studies establishing the insensitivity of the Cl channel to regulation by cAMP in cells from persons with the disease and consider the possibility that the Cl channel may be regulated by Ca^{2+}-dependent phosphorylation or by fatty acids.

A non-exocrine secretory cell preparation is discussed by J. F. Kuo who describes the kinetics and mechanisms of action of several inhibitors of protein kinase C and Na^+-K^+ ATPase activities in synaptosomes. Kuo also discusses the time course over which protein kinase C is redistributed during differentiation of leukemia (HL60) cells exposed to an activator of protein kinase C.

Signaling mechanisms in immune system cells are represented by four papers. N. C. Chien and J. C. Cambier briefly summarize the signaling pathways linked to membrane immunoglogulins in B lymphocytes. They then undertake a more detailed review of evidence bearing on the structure of the multisubunit antigen receptor of the B cell. G. S. Edwards and colleagues evaluate evidence for limitations on the role of Ca^{2+} in mediating the cytolytic activity of human natural killer cells. The role of tyrosine phosphorylation and dephosphorylation in regulating protein kinase C activity in T cells is discussed by J. A. Ledbetter and colleagues. R. E. Taffs and co-authors review in involvement of Ca^{2+} in the cytotoxic activity of T lymphocytes and then consider the role of extracellular ATP in mediating those cytotoxic effects that do not appear to depend on changes in cytosolic Ca^{2+} levels.

This volume, then, is an eclectic collection useful for its bringing together of workers studying closely related phenomina in what might be perceived to be unrelated systems. As with many proceedings of this type, the contributions tend to be reviews, often with an emphasis on work from the authors' laboratories. Many of these authors, however, have long been prominent contributors to their fields and the meeting's organizers were successful in addressing the chosen subject matter with an impressive level of expertise. The time elapsed since the original presentations may reduce the utility of this volume for workers in closely related areas. However, the work will furnish useful introductions for those less familiar with those areas, and, that, combined with its modest price, would assure a wide audience for this useful volume.

Tom Hurley
University of Missouri-Columbia

The Computational Brain

Patricia S. Churchland and Terrence J. Sejnowski
Cambridge, MA: MIT Press, 1992, 544 pp., $39.95

Neural networks, the latest, most fashionable area of computer design, have taken as their inspiration the organizational principles of biological systems in the brain. Neuroscientists have sought to use some of the computational algorithms derived by systems engineers as tools for modeling the complex information processing functions of the nervous system. Patricia Churchland, Professor of Philosophy at UCSD, and Terrence J. Sejnowski, Professor of Biology at UCDS and Director of the Computational Neurobiology Laboratory at the Salk Institute, have attempted to synthesize the disciplines of computer science and neurobiology, with a dollop of philosophy, into a primer for investigators seeking a working understanding of these fields. *The Computational Brain* is a must-read volume for neurophysiologists seeking an introduction to the concepts of neurocomputing. The book is particularly successful in explaining the specialized terminology of neural networks to the non-mathematically trained neuroscientist. One comes away from the overview of computational principles presented in Chapter 3 with a clear, conceptual understanding of such important notions as vector coding, error minimization rules, gradient descent, and backpropagation algorithms.

The central chapters of *The Computational Brain* delve into some of the most widely studied, and provocative areas of current neuroscience research: a) visual information processing, b) neuronal plasticity and its relation to learning and memory, and c) sensorimotor integration. The analysis of principles of modern neuroscience from the perspective of layered networks with information distributed across a population of neurons is useful for the insights provided to the neurophysiologist who already knows the basic material. The non-expert trying to learn basic neurobiology de novo is well advised to read one of the standard texts, such as Kandel, Schwartz, and Jessell's *Principles of Neural Science* or Nicholls, Martin, and Wallace's *From Neuron to Brain* before attempting this work.

The experienced and knowledgeable physiologist will be richly rewarded by the critical insights into widely accepted and extensively used techniques of contemporary neurobiology. For example, the treatment of assumptions underlying single unit analyses of sensory systems provides a fresh and innovative examination of the field. Neurophysiologists have learned much from recording the activity of neurons one at a time, particularly how firing patterns are modified by stimulation, reflecting particular stimulus features. However, just as one cannot evaluate an entire television image simply by examining the fluctuations of a single pixel, so too the view of an individual cortical neuron gives only a limited and perhaps distorted representation of the entire image. The authors describe the concept of a vector, the weighted ensemble of activity in a population of individual neurons. They demonstrate the intellectual merits of this type of distributed processing for explaining certain fundamental aspects of sensory coding. The vector code can provide a framework for correlating similar precepts, such as faces, bridges, shapes, etc., while allowing mechanisms for preserving the identity of individual stimuli. Vector coding is also related to the notion of topographic maps as a potential mechanism for categorization.

Churchland and Sejnowski further explain how activation vectors, representing the firing patterns of individual neurons, interact with synaptic weights, reflecting the relative importance of each neuron to the overall percept. The whole may, in fact, be more than

the sum of its individual components, because the weights assigned to each member of the group are not necessarily uniformly distributed and therefore do not contribute an equal voice. The brain may be less of a democracy than an oligarchy, whose members are selected by specific input patterns. The analysis points up the urgent need for developing new techniques for analysis of sensory function in which the behavior of an ensemble of neurons can be analyzed at the same time that we listen to the individual voices. The use of neural network algorithms may therefore be of considerable use to sensory neurobiologists for the derivation of new methods for the analysis of neuronal function and the understanding of how a particular output vector might be put together from individual components.

The section devoted to plasticity focuses primarily on a discussion of long-term potentiation (LTP) and depression (LTD) in the hippocampus as cellular analogues of learning and memory. The treatment of this subject is comprehensive and up-to-date, if slightly disorganized. Furthermore, the attempt to be cute in the description of presynaptically derived (Hebbian) and postsynaptically elicited (non-Hebbian) LTP as vanilla and chocolate LTP may appeal to certain hackers but is counterproductive to the reader's understanding, because the terminology does not illuminate the mechanism. However, this chapter provides a crucial insight into the problem of the physiological significance of these popular all-encompassing mechanisms for memory formation. Churchland and Sejnowski stress the often disregarded observation that these processes are elicited by very artificial means of activation of the input pathways to the hippocampus. They note that we really have very little understanding of what constitutes the real physiological input patterns and codes used in the hippocampus. The authors remind the reader that a much clearer description of the higher order stages of cortical information processing along the lines suggested earlier in the volume is clearly necessary before comprehensive theories of memory can be formulated.

The Computational Brain concludes with a discussion of the application of neural network methodology as a technique for understanding some basic processing mechanisms in neurobiology. The authors address the problem of how one achieves a global effect by local changes distributed across a population of neurons arranged in a layered network with lateral feedback. In examples drawn from models of the development of ocular dominance columns in the visual cortex, the organization of segmental motor control in the leech, the physiology of the vestibular ocular reflex, and neural control of lamprey swimming, the authors demonstrate the value of such models for testing hypotheses concerning functional organization. They also show how the models have been successful in pinpointing possible anatomical sites where the crucial transformation of information occurs and in suggesting underlying mechanisms that can be tested experimentally.

The least successful portions of the book are the two opening chapters. The volume begins with a general appreciation of the broader philosophical context in which the authors place the materialistic notions of neurobiology and the general principles of network design. The apologia reminds this reviewer of why she chose to get a doctorate in physiology rather than in philosophy. The philosophical insights provided seem almost an afterthought and add little to what is otherwise a provocative and interesting volume. The overview of neuroscience in Chapter 2 is too terse in its treatment of the concepts of hierarchical organization, distributed representation, and spatial maps; the presentation assumes that readers are already familiar with this material. Finally, I am not sure what to make of the distracting section entitled "Computers, Pseudocomputers and cryptocomputers" except to note that it interrupts the development of the mathematical derivation.

Neurophysiologists seeking fresh insights and a novel perspective on their field should add *The Computational Brain* to their library. The overview of principles of computational network analysis will provide the necessary background for delving more deeply into the specialized, technical literature of neural networks. Go directly to Chapter 3 and embark on a new way of approaching the brain.

Esther P. Gardner
New York University School of Medicine

Plasticity of Motoneuronal Connections—Peripheral and Central

A. Werning (Editor).
New York: Elsevier, 1991, 512 pp., illus., index, $220.00

"You can't always judge a book by its cover" . . . or in this case by its title. This compendium is not just about plasticity or even about motoneurons. Instead it contains a wide-ranging and often eclectic set of contributions ranging from muscular development to membrane biophysics. The editor, A. Wernig, explains in the preface that the book is really "a collection of representative articles from many different fields which nevertheless focus around a unique nerve cell, the motoneuron." However, even this description may not be sufficiently broad. For example, the reader may be surprised to encounter an interesting chapter on axonal regeneration in the retina (Thanos and Vanselow) and one on burst firing in neurons of molluscs (Swandulla, Muller, and Partridge).

Like many other recent volumes of this kind, *Plasticity of Motoneuronal Connections* was compiled from a meeting of specialists. The book thus profits from the up-to-date expertise that such individuals can bring to a multi-authored text. Some chapters provide outstanding overviews of fields in rapid evolution. They reflect the enthusiasm and excitement of neuroscientists who find themselves in previously unexplored territory with new and powerful techniques. For example, an excellent chapter by Balice-Gordon and Lichtman not only surveys the plasticity of neuromuscular endplates using vital fluorescent dyes but goes on to examine the technical considerations of such methods in a style that is both authoritative and interesting. Another by Wolpaw describes the fascinating modifiability of the Ia synapse, asking more questions than it answers about the mechanisms that might be involved. Both of these chapters would make excellent material for discussion in graduate-level seminar courses. Other chapters have the measured pace and broader focus of fields with longer histories. They will be valuable resources for scientists and graduate students who need an up-to-date perspective and a current reference list. Many authors have taken particular care in the illustration of their chapters, which enhances the clarity of the chapters and contributes to the visual appeal of the book as a whole.

However, this volume also suffers from some of the problems inherent in a multi-authored collection covering many topics. The editor does not have free reign to change or reject certain contribu-

tions to ensure the coherence and relevance of the book as a whole. Thus the reader must expect some variability of style and content from one chapter to another. Because each chapter is free standing, the reader may find that similar literature is often reviewed more then once. Some chapters are written as broad reviews, others as narrower descriptions of recent experiments, using a typical manuscript style. The editor has attempted to group the papers into sections, each with a preface to orient the reader. However, these introductory sections are superficial and often inadequate to glue together the chapters that follow.

The uncomfortable juxtaposition of this book's title and its contents raise an interesting semantic and philosophical question. What is plasticity? Should the term be applied equally to the phytogenetic adaptation of species, the ontogenetic development of structures, and the use-dependent modification of mature individuals? Should it apply equally to long-term changes requiring structural modifications and to short-term modulations of function? Undoubtedly the organizers of this meeting wrestled with this problem when they attempted to develop a coherent program for the conference from which this book was born. Their thoughts on this thorny problem would have been of interest to the reader.

Where will this book find its audience? It will be a valuable reference for the experimentalist who already has a background in neuroscience but wishes to update. The wide-ranging content and up-to-date references make this an ideal sourcebook for graduate trainees who need a thorough orientation to recent experiments concerning neuromuscular plasticity and motoneuronal connectivity. Of particular value are the very thorough reviews of work relating to the development of plasticity of neuromuscular endplates, which tend not to be well described in most current physiology textbooks and monographs. The $240 price tag on the book will, however, give the individual reader some pause. Nonetheless, it is a book that should be placed on the "highly recommended" list for the library if it is beyond the reach of the reader's private means.

F. J. R. Richmond
Queens University
Ontario, Canada

Targeted: The Anatomy of an Animal Rights Attack

L. O. Lutherer and M. S. Simon
Norman, OK: University of Oklahoma Press, 1992, 170 pp., illus., index, $22.95

The book provides a case study of what happened to John Orem at Texas Tech as an illustration of the Modus Operandi of various elements of the animal rights movement. Chapters on history, crisis management, IACUA's, security, legal issues, legislation, and an appendix listing many contracts make this a good handbook.

Adrian R. Morrison
Director, Program for Animal Research Issues
National Institute of Mental Health

Aspects of Synaptic Transmission

T. W. Stone (Editor)
New York: Taylor and Francis, 1991, 404 pp., illus., index, $90.00

The book, *Aspects of Synaptic Transmission*, consists of a collection of general reviews on selected areas of synaptic transmission. The range is broad. Topics included are: LTP and LTD, studies of the neuropeptide galanin, opioid receptors, 5-HT_3 receptors, opioids and memory, opioids and respiratory depression, beta-casomorphins, and nitric oxide as a transmitter. Many of the authors are younger scientists with fresh views of these subjects. Some of the strengths are in fact the new perspectives posed, such as the possibility that Ca^{2+} concentration determines whether stimulation will result in long-term potentiation or depression, that nitric oxide is the neurotransmitter at many non-adrenergic, non-cholinergic terminals, or that galanin acts as an inhibitory co-factor of cholinergic neurotransmission. The limitations lie in the frequent lack of comprehensive or classical review of the subjects (not the purpose of the compendium) and the possibility that many of the new perspectives and hypotheses will not be ultimately confirmed. Some, however, will. Consequently, the book is recommended reading for these working in these areas who seek new information and approaches.

Charles D. Woody
University of California, Los Angeles

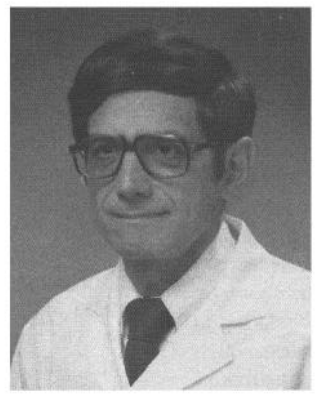
Four APS Members Elected to IOM

The 50 new members elected this year to the Institute of Medicine (IOM) included four APS members. When their terms began on July 1, **Sue K. Donaldson, Norman Levinsky, Luigi Mastroianni, Jr.,** and **Philip Needleman** became part of a distinguished body whose 482 members are committed to serve on IOM committees conducting studies on a broad range of health policy issues.

New IOM members are elected by present active members from a roster of candidates chosen for their major contributions to health and medicine or to related fields such as social and behavioral sciences, law, administration, and economics. Election to the IOM is widely regarded as an honor. In addition, members are asked to commit a significant amount of time to IOM committees.

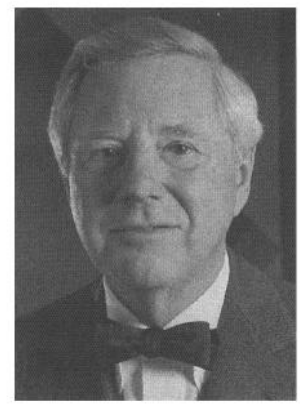
Donaldson, Levinsky, and Needleman were elected to active membership, and Mastroianni was elected directly to IOM senior membership.

Sue K. Donaldson received her BSN and MSN from Wayne State University and her PhD in Physiology and Biophysics from the University of Washington. Throughout her entire career she has held concurrent positions in Physiology and Nursing. Her main areas of interest in physiology include skeletal and cardiac muscle physiology. In 1983 she was appointed as Professor of Physiology and Professor of Nursing at the University of Minnesota and has held the Cora Meidl Siehl Chair for Nursing Research since that time. She has served as major thesis advisor for students earning MS and PhD degrees in nursing, PhD degrees in physiology, and the professional degree of Doctor of Nursing Science. She presently serves as a member of the Editorial Board of the *American Journal of Physiology: Cell Physiology*.

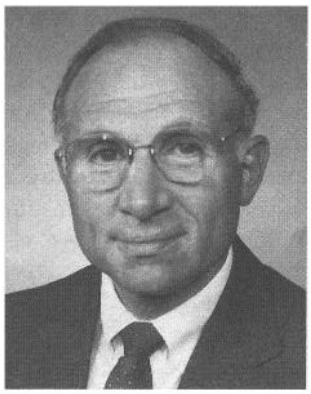


Norman G. Levinsky is Chairman of the Department of Medicine at Boston University Medical Center and serves as Chief of Medicine both at Boston City Hospital and at the University Hospital. A graduate of Harvard College and Harvard Medical School, he received postgraduate training in internal medicine at Beth Israel Hospital. He served as a fellow in renal physiology in the laboratory of Robert W. Berliner at the National Institutes of Health and as a fellow in nephrology at Boston University Medical Center under Arnold S. Relman. Levinsky's initial academic pursuits in clinical nephrology and renal physiology concerned the regulation of sodium excretion in the kidney, the concentration of urine, and acute renal failure. Recent academic interests include medical ethics, rationing, and medical education.

Luigi Mastroianni, Jr. is the William Goodell Professor and Chairman of Obstetrics and Gynecology at the University of Pennsylvania School of Medicine and Director of the Division of Human Reproduction. Mastroianni is a graduate of Yale University and received an MD from Boston University School of Medicine. He did his internship and residency in obstetrics and gynecology at Metropolitan Hospital in New York and then took a fellowship in reproductive endocrinology at Harvard Medical School and Free Hospital for Women, working under the direction of the late John Rock. His early academic interests were the basic physiology of the oviduct, characterizing its metabolism, the nature and timing of its secretions, and the role of the oviductal environment in oocyte conditioning, sperm activation, and fertilization. In 1965 he was appointed to his current position, where he continues his strong commitment to research, clinical service, and public advocacy in reproductive biology. Mastroianni founded the Division of Human Reproduction in 1965, which serves as the home for a research institute with an international focus that has fostered the development of the careers of investigators from more than 25 countries.



Philip Needleman is Corporate Vice President for Research and Development and Chief Scientist at Monsanto as well as President of Searle Research and Development. After earning his BSc and MSc from the Philadelphia College of Pharmacy and Science, he received his PhD in pharmacology from the University of



Maryland Medical School. Needleman joined the Washington University School of Medicine in 1964 as a postdoctoral fellow. He became a member of the faculty in 1967 and was named head of the pharmacology department in 1976. Needleman joined Monsanto in February 1989 and was an architect of the Washington University-Monsanto alliance. Needleman has made contributions to four fields of pharmacology: nitroglycerin metabolism, angiotensin, arachidonic acid metabolism, and atriopeptins.

Mountcastle Awarded Australia Prize

Vernon B. Mountcastle has been awarded the 1993 Australia Prize, a A$250,000 prize awarded by the Australian government recognizing outstanding achievement in sensory perception. Mountcastle, professor of neuroscience at the Johns Hopkins School of Medicine, was the first to show that nerve cells in the somatosensory cerebral cortx are organized in vertical columns. He will share the prize with two other scientists.

Valtin Honored at Conference

Heinz Valtin was honored at the Fourth International Conference on Vasopressin in May in Berlin. The conference opened with the Heinz Valtin Lecture, given by Dietmar Richter, University of Hamburg. The speech was preceded by an appreciation of Valtin by Karl Lederis, University of Calgary. Valtin is the Constantine and Joyce Hampers Professor of Physiology at Dartmouth-Hitchcock Medical Center as well as the Andrew C. Vail Professor of Physiology emeritus.

BOOKS RECEIVED

Visual Representations of Speech Signals. Martin Cooke, Steve Beet, and Michael Crawford (Editors). New York: Wiley, 1993, 385 pp., illus., index, $79.95. ISBN: 0-471-93537-9.

Physiology. Nicholas Sperelakis and Robert O. Banks (Editors). Boston, MA: Little, Brown, 1993, 911 pp., illus., index, $35.00. ISBN: 0-316—80629-3.

Biostatistics. James F. Zolman. New York: Oxford University Press, 1993, 343 pp., illus., index, $45.00. ISBN: 0-19-507810-1.

Acid and Basics: A Guide to Understanding Acid-Base Disorders. Jerome Lowenstein. New York: Oxford University Press, 1993, 154 pp., illus., index, $14.95. ISBN: 0-19-507573-0.

Cancer Treatment By Hyperthermia, Radiation, and Drugs. Tadayoshi Matsuda (Editor). Bristol, PA: Taylor & Francis, 1993, 397 pp., illus., index, $160.00. ISBN: 0-85066-837-9.

Perspectives in Exercise Science amd Sports Medicine, Volume 6: *Exercise, Heat, and Thermoregulation*. Carl V. Gisolfi, David R. Lamb, and Ethan R. Nadel (Editors). Carmel, IN: Brown & Benchmark, 1993, 389 pp., illus., index, $45.00. ISBN: 0-697-20492-8.

The Sexual Brain. Simon LeVay. Cambridge, MA: MIT Press, 1993, 168 pp., illus., index, $22.50. ISBN:0-262-12178-6.

Theoretical Mechanics of Biological Neural Networks. Ronald J. MacGregor. *Neural Networks: Foundatins to Applications*, Volume 3. Zornetzer, Davis, Lau, and McKenna (Editors). Boston, MA: Academic, 1993, 380 pp., illus., index, $69.95. ISBN: 0-12-464255-1.

Natural and Synthetic Neurotoxins. Alan L. Harvey. (Editor). *Neuroscience Perspectives*. Peter Jenner (Series Editor). Boston, MA: Academic, 1993, 360 pp., illus., index, $45.00. ISBN: 0-12-329870-9.

Peripheral Benzodiazepine Receptors. Eva Giesen-Crouse (Editor). *Neuroscience Perspectives*. Peter Jenner (Series Editor). Boston, MA: Academic, 1993, 281 pp., illus., index, $45.00. ISBN: 0-12-282630-2.

Visual Search 2. David Brogan, Alastair Gale, and Karen Carr. Bristol, PA: Taylor & Francis, 1993, 477 pp., illus., index, $99.00.

Dyslexia and Development: Neurobiological Aspects of Extra-Ordinary Brains. Albert M. Galaburda (Editor). Cambridge, MA: Harvard University Press, 1993, 378 pp., illus., index, $45.00. ISBN: 0-674-21940-6.

William S. Spielman, formerly at Smith Kline Beecham Pharmaceuticals, is back at Michigan State University as chair of the physiology department.

Thomas M. Glenn has moved to Phytopharmaceuticals, Inc. An APS member since 1980, Glenn was formerly with Cytel Corp.

Robert G. Lynch is now at the Department of EPO Biology, University of Colorado, Boulder. He has been at Wesleyan University, Middletown, CT.

Mitchell H. Perry has moved from the VA Medical Center, St. Louis, to the Hypertension Division, Washington University School of Medicine, St. Louis. Perry was elected to Society membership in 1963.

Formerly at the Albert Einstein College of Medicine, **Arthur S. Rovner** has accepted an appointment in the Department of Molecular Physiology and Biophysics, University of Vermont College of Medicine, Burlinton, VT.

APS member **Susan S. Margulies** has moved to the Department of Bioengineering, University of Pennsylvania, Philadelphia. She was formerly at the Mayo Clinic.

Giovanni Piedimonte, who has been at the University of California, San Francisco, is now at the Department of Pediatric Pulmonary Medicine, University of North Carolina, Chapel Hill. Piedimonte was elected to APS membership in 1992.

Una S. Ryan has accepted a position as vice president of research, chief scientific officer, at T-Cell Sciences, Inc., Cambridge, MA. She was formerly at Washington University, St. Louis.

APS member **Hiroaki Shimokawa** is now at the Research Institute of Angiocardiology and Cardiovascular Clinic, Kyushu University Medical School, Fukuoka, Japan.

James O. Hill has moved from Vanderbuilt University to the Center for Human Nutrition, University of Colorado Health Sciences Center, Denver.

Formerly at Cornell University Medical College, **Chin O. Lee** has recently accepted a position as professor and chair of the Department of Life Sciences, Pohang Institute of Science and Technology, Pohang, Korea.

APS member **Asrar B. Malik** is now professor and chair of the Department of Pharmacology at Rush Medical College, Chicago. He moved from the Albany Medical College.

Nicholas S. Gantenberg has moved from the National Institutes of Health to Procter & Gamble Co., OTC-Health Care Technology Division, Cincinnati, OH.

Formerly at the University of Kentucky Medical Center, **Bruce R. Boynton** has moved to the Clinical Investigation Department, Naval Hospital, San Diego. Boynton was elected to APS membership in 1990.

Mark Alan Douse has moved from the University of Toronto to Respiratory Care, Denver VA Medical Center.

Bryan K. Slinker has accepted a position as associate professor in the VCAPP Department, Washington State University, Pullman. Formerly at the University of Vermont, Slinker has been an APS member since 1987.

Harvey B. Lillywhite has moved from NASA-Ames Research Center to the Department of Zoology, University of Florida, Gainesville.

Call for Nominations

Editor

Physiological Reviews

Nominations are invited for the editorship of the *Physiological Reviews* to succeed Luis Reuss, who will complete his term as Editor on December 31, 1993. The Publications Committee plans to interview candidates in November 1993. Applications should be received on or before October 15, 1993. Nominations, accompanied by a curriculum vitae, should be sent to the chair of the Publications Committee: Leonard S. Johnson, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991.

Physiologist. PhD in mammalian physiology with demonstrated expertise in cardiovascular physiology. The applicant will participate in the medical school teaching programs and will also be expected to establish an independent research program. Academic rank and salary will be commensurate with individual qualifications. Send a resume and the names of three references to Domenic A. DeBias, Department of Physiology and Pharmacology, Philadelphia College of Osteopathic Medicine, 4170 City Avenue, Philadelphia, PA 19131. Tel: 215-871-2888. [EOAAE]

Coordinator of Microvascular Research. Research Faculty Position, Deaprtment of Emergency Medicine, Louisiana State University Medical Center in Shreveport. Activities include independent research; collaboration with other investigators; supervision of students and Emergency Medicine resident projects; consultation on statistical analysis, research design, methodology, grant writing, and research teaching. Contact Donna Carden, Louisiana State University Medical Center, PO Box 33932, Shreveport, Louisiana 71130-3932. [EOAAE]

Positions Available

There is a $50 charge for each position listed. Positions will be listed in the next available issue of *The Physiologist* and immediately upon receipt on the **APS Gopher Information Server**. Listings will remain on the APS Information Server for 3 months.

A check or money order payable to the American Physiological Society must accompany the position listing. Purchase orders will not be accepted unless accompanied by payment. Ads not prepaid will not be printed. Copy must be typed double spaced and is limited to 150 words. All copy is subject to the editorial policy of *The Physiologist*. EOAAE indicates Equal Opportunity/Affirmative Action Employer and appears only when given on original copy. Copy deadline: copy must reach the APS office before the 15th of the month, two months preceding the month of issue (e.g., before February 15th for the April issue). Mail copy to APS, *The Physiologist*, 9650 Rockville Pike, Bethesda, MD 20814-3991.

People and Places

People and Places notices come almost exclusively from information provided by members and interested institutions. To ensure timely publication, announcements must be received at least two months (by the 15th of the month) before the desired publication date. Send all information to *The Physiologist*, APS, 9650 Rockville Pike, Bethesda, MD 20814-3991.

APS Sustaining Associate Members

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

Abbott Laboratories
Alliance Pharmaceutical Corporation
American Medical Association
Axon Instruments, Inc.
Berlex Laboratories, Inc.
* Boehringer Ingelheim
Boeing Defense & Space Program
Burroughs Wellcome Company
CIBA-GEIGY Corporation
Coulbourn Instruments, Inc.
Dagan Corporation
Du Pont Pharmaceuticals
Fisons Pharmaceuticals
Genentech, Inc.
Glaxo, Inc.
Gould, Inc.
Grass Foundation
Groupe de Recherche Servier
Harvard Apparatus
Hoechst-Roussel Pharmaceuticals, Inc.
* Hoffman-La Roche, Inc.
ICI Pharmaceuticals Group
Jandel Scientific
Janssen Research Foundation
R. W. Johnson Pharmaceutical Research Institute
Kabi Pharmacia
Lederle Laboratories
Eli Lilly & Company
Lockheed Missles & Space Company, Inc.
Marion Merrell Dow Inc.
McNeil Pharmaceutical
* Merck & Co., Inc.
Miles Institute for Preclinical Pharmacology
NARCO Bio-Systems
Pfizer, Inc.
Pharmacia, Inc.
Procter & Gamble Company
Quaker Oats Company
* Sandoz Pharmaceuticals Corporation
* Schering-Plough Corporation
G. D. Searle and Company
SmithKline Beecham Pharmaceuticals
* Squibb Corporation
Sutter Instruments Company
* The Upjohn Company
Warner-Lambert/Parke Davis
Waverly Press
Wyeth-Ayerst Laboratories

* Second Century Corporate Founders

Scientific Meetings and Congresses

15th Annual International Gravitational Physiology Meeting, Barcelona, Spain, October 4–7, 1993. *Information*: Lorraine Tucker, APS, 9650 Rockville Pike, Bethesda, MD 20814. Tel: 301-530-7165; fax: 301-571-8305.

9th Annual Meeting of the American Society for Gravitational and Space Biology, Crystal City, VA, October 20–23, 1993. *Information*: Donald R. Beem, AIBS, 730 11th Street NW, Washington, DC 20001. Tel: 202-628-1500.

Thirty-third Annual Meeting of the American Society for Cell Biology, New Orleans, LA, December 11–15, 1993. *Information*: ASCB Meeting Office, 9650 Rockville Pike, Bethesda, MD 20814-3992. Tel: 301-530-7153; fax: 301-530-7139.

Coronary Artery Spasm, New York, NY, February 22–25, 1994. *Information*: Conference Department, New York Academy of Sciences, 2 East 63rd Street, New York, NY 10021. Tel: 212-838-0230; fax: 212-838-5640.

XI Congress of the International Society for Artificial Cells and Immobilization Biotechnology, Boston, MA, July 23–28, 1994. *Information*: Pamela Brown, MIT, 77 Massachusets Ave., Room E25-342, Cambridge, MA 02319. Tel: 617-253-3123; fax: 617-258-8827.

Molecular and Structural Biology of Tissue Repair Workshop

The National Institute of General Medical Sciences (NIGMS), National Institutes of Health (NIH), is sponsoring a one-and-a half day workshop entitled "Molecular and Structural Biology of Tissue Repair." The meeting will bring together structural biologists, including crystallographers, NMR spectroscopists, and protein chemists; cell biologists; biomedical engineers; and surgeons from academia and the biotechnology industry, for the purpose of extablishing a deeper understanding of the basic mechanisms involved in tissue repair. Topics to be covered will focus on the relationship between the high resolution structural studies of growth factors and other cytokines and the ultimate clinical applications. Some specific presentations will include the biology of growth factors; identification and cloning of relevant receptors; structural and biochemical studies on receptor/ligand interactions; and molecular studies of the transcription factors involved in regulation growth factor/cytokine expression and function.

For further information contact Linda Shein, Biophysics and Physiological Sciences Program, NIGMS, NIH, 5333 Westbard Avenue, Room 907, Bethesda, MD 20892. Tel: 301-594-7800; fax: 301-594-7700.

Pierre Rijlant Academic Award

The Award of the Professor Pierre Rijlant Academic Foundation of Cardiac Electrophysiology will be awarded again in 1994. The award is designed to recompense a scientist who has made a major contribution to the field of cardiac electrophysiology, particularly in the fields of hybrid computers in electrocardiography, application of computers to electrocardiography, and vectography and analog simulation.

The amount of the prize will reach 500.000 B.F. Applications are due before December 31, 1993, and should include (in triplicate) curriculum vitae, paper presented with a view to obtaining the Award, summary account of scientific production with main references, and list of previous awards. For further information, write to Marc Renard, Secretary of the Foundation, Palais des Academies, Rue Ducale 1, B-1000 Bruxelles (Belgium).