

The Physiologist

Volume 44, Number 1

February 2001



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Personal Reflections on the “Animal-Rights” Phenomenon

**Adrian R. Morrison,
University of Pennsylvania**

Personal Attention

The phone rang on Sunday morning, January 15, 1990 while I was sitting on my living room couch completing a paper on the use of animals in biomedical research for a symposium sponsored by the American Association for the Advancement of Science. The Associated Press had called to get my reaction to the news that the Animal Liberation Front (ALF) had broken into my laboratory. My heart sank as I thought: “They finally got me.”

The raid focused on my office, which they trashed while ransacking my files. I learned later that someone wanted evidence the government was paying me to defend biomedical research. They were wrong.

I was shocked but not surprised—indeed, surprised that I was so shocked. The animal rightists had good reason to be angry with me so I knew I was vulnerable. Nevertheless, nothing prepared me for the media barrage [including a grossly distorted article featuring me in *The Village Voice* (26) later sent by People for the Ethical Treatment of Animals (PETA) to all in my community], hate mail and death threats over the telephone during the following days, weeks, and months.

It all began long before, of course. Probably the germ of an idea seeded itself in 1981 when I began to defend a neuroscientist, Dr. Edward Taub of Silver Spring, Maryland, from trumped-up charges he had treated his monkeys with de-afferented limbs cruelly (18). Taub suffered

greatly: he was abandoned by all but a few of us; he used up his personal savings defending himself; and he was without a job for six years. Ultimately, he triumphed. Because court battles kept the animals alive for several years beyond the purposes of the original experiments, recordings from the cerebral cortex (when they were eventually released by the court for a four-hour recording session prior to euthanasia) revealed a degree of reorganization in the brain in adult monkeys that was unexpected (24). Furthermore, Taub and his colleagues have demonstrated that stroke victims can be trained to use an arm rendered “useless” by a stroke (132, 38). This is accomplished by forcing the patient to employ the affected limb for various tasks by restraining the normal one. Taub had come to this idea with his studies in monkeys that had demonstrated that they could be trained to use the affected arm without sensory feedback following section of the dorsal roots.

Certainly, PETA had noticed my involvement in the Taub case. For example, they included a newspaper’s quote of my rejection of the idea that researchers are sadists in a cleverly edited half-hour video made from 60 hours of tapes the ALF allegedly handed them after they raided the Head Injury Research Laboratory of the University of Pennsylvania’s School of Medicine in 1984. PETA grossly distorted the case for its own benefit. Responsible scientists and veterinarians were in honest disagreement over the actual conditions of the baboons used during the experiments. Even the executive director of the Pennsylvania Society for the Prevention of

(continued on page 7)

Perspectives in Biology and Medicine 44:1 (2001), 62-75.
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Corrigenda:

The APS apologizes for incorrectly identifying the person in the top-right photograph on page 470, Volume 43, #6 of The Physiologist. The person shown is Oliver Smithies.

Published bimonthly
and distributed by
The American
Physiological Society

9650 Rockville Pike
Bethesda, Maryland 20814-3991
ISSN 0031-9376

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Subscriptions: Distributed to members as part of their membership. Nonmembers in the USA: individuals \$45.00; institutions \$70.00. Nonmembers in Canada and Mexico: individuals \$50.00; institutions \$75.00. Nonmembers elsewhere: individuals \$55.00; institutions \$80.00. Single copies and back issues when available, \$15.00 each; single copies and back issues of Abstracts issues when available, \$25.00. Subscribers to *The Physiologist* also receive abstracts of the 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: Jan. 10, February issue; March 10, April issue; May 10, June issue; July 10, August issue; Sept. 10, October issue; Nov. 10, December issue.

Please notify the central office as soon as possible if you change your address or telephone number.

Headquarters phone: 301-530-7164.

Fax: 301-571-8305.

<http://www.the-aps.org>

Printed in the USA

Council Meets in Scottsdale

Council Meets in Scottsdale

The APS fall Council meeting was held in Scottsdale, Arizona, at the Regal McCormick Ranch on November 18-20, 2000.

During the meeting, several new initiatives were approved in an effort to continue to provide the Society's membership with ongoing opportunities.

With respect to publications, Council approved providing the APS online collection (now available for \$49.50) free to all members in good standing, including students, as of January 2002. This will enable members to have access to the online journal collection at home and on the road. This is an especially welcome member benefit for overseas members who will have access to the current journal issues more quickly. Also approved was the recommendation of the Publications Committee to bundle all of the review articles from the various journals at one location on the HighWire website. This will allow readers to go to one site and see all the review articles that were published in all the APS journals rather than having to go to each individual journal.

The 2000 Strategic Plan had called for a new conference series on physiological genomics. **Curt Sigmund** and **Craig Gelband** are organizing the first of these new conferences, which will be entitled "Physiological Genomics of Cardiovascular Disease." A tentative date of February 21-23, 2002 has been set, with a tentative location of San Francisco, CA. Council reiterated its determination to make this new conference series a high-quality and exciting venue for the dissemination of information on the fast growing field of physiological genomics. Future conferences will focus on other organ systems and the effect of physiological genomics on that particular field.

Another outcome of the 2000 Strategic Plan was the establishment in 2000 of the first four task forces: a Journal Pricing Task Force (chaired by



APS Council in Scottsdale: Back row (left to right): Dale Benos, Jo Rae Wright, Steven Hebert, Gerald DiBona, John Hall, Doug Eaton, Hannah Carey, Barb Goodman, Mordecai Blaustein. Front row (left to right) Walter Boron, Phyllis Wise, William Chin, Celia Sladek, Curt Sigmund (for Judith Neubauer).

Dale J. Benos, Publications Committee Chair), a Task Force on Communications/Public Information (chaired by **Hannah V. Carey**, APS Councillor), a Physiological Genomics Task Force (chaired by **William J. Chin**, APS Councillor), and a Translational Research Task Force (chaired by **Steven C. Hebert**, APS Councillor, and **John E. Hall**, APS President-elect). Council received preliminary reports from these task forces at the fall meeting (see companion report, p. 4). A new task force, the Task Force on Sections and Groups, is currently being assembled. Former Section Advisory Committee Chair, **Richard J. Traystman**, has agreed to serve as Chair of the Task Force. Other Task Forces in the planning stages are a Task Force on Awards and a Task Force on APS Foundation/Fund Raising. These will be assembled later in 2001.

The new procedures enacted last fall with regard to processing membership applications on a monthly basis have been proceeding very well and have been met with enthusiasm and appreciation from potential members. Another new benefit for members will begin in January 2001 with the initiation of a

new members-only area of the APS web site. In that area, members will be able to update their membership information, including address and sectional affiliation, pay dues and subscriptions, search the member database for other members in their field or locale, modify which listservs they are subscribed to, and access the APS bulletin boards and chat rooms.

Council continued to be impressed with the efforts of the International Physiology Committee. The Latin American Initiative is a new program initiated by the Committee this past year. The first full round of applications were received this fall for consideration. Council approved the funding of four proposals for courses or symposia. These are 1) a course on "Molecular Modeling of Macromolecules," hosted by the Institute of Biotechnology, Universidad Autonoma of Mexico (UNAM), Mexico, organized by Mario Amzel, Johns Hopkins University; 2) a symposium on "Stressor-Induced Alterations in Sleep," hosted by Department of Psychobiology, Universidade Federal de Sao Paulo,

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Council Meets in Scottsdale

(continued from page 3)

Brazil, organized by Mark R. Opp, University of Texas Medical Branch at Galveston; 3) a workshop on "Comparative Aspects of the Oxidative Stress in Biological Systems," hosted by the Center for Biological Research, La Paz, Baja California, Mexico, organized by Tania Zenteno-Savin, Center for Biological Research, Mexico; and 4) a course on "Mechanisms of Ion Transport Across Cell Membranes," hosted by Instituto Venezolano de Investigaciones Cientificas (IVIC), organized by Reinaldo DiPolo, Department of Biophysics, IVIC, Venezuela. The International Physiology Committee recommended that the

deadline for application proposals for the Latin American Initiative be changed from August 1 to March 1, which will allow the Committee to discuss the applications during their annual face-to-face meeting during EB and provide a recommendation for the Council to discuss during its meeting in July as well as providing the organizers more rapid feedback.

Council accepted the final 2000 budget and the proposed 2001 budget. It also accepted a proposal to use investment pooling in managing long-term investments, as recommended by the Finance Committee. In the past, each of the Society's several reserve accounts were handled independently and

according to different investment philosophies. Pooling the Society's long-term investments will spread the gains, losses, and income to all the funds proportionately according to each fund's share of total invested assets.

In addition the wording of the Bylaw change to move the dues year from July-June to the calendar year of January-December was approved. This Bylaw change will be presented to the membership for a vote at the annual Business Meeting in April 2001.

Additional details of the Council's actions during the November meeting will be communicated to the membership at the April 2001 APS Business Meeting. ❖

Task Force Reports

As a result of the 2000 Strategic Plan, Council decided to establish eight task forces, each of which would be charged with examining a particular issue for the Society and developing goals and recommendations for future actions. These task forces will be implemented over a period of three years. The first four were established in 2000: a Journal Pricing Task Force, a Task Force on Communications/Public Information, a Physiological Genomics Task Force, and a Translational Research Task Force. Below are the reports from those task forces.

Journal Pricing Task Force

The Journal Pricing Task Force was established by the Strategic Plan "to develop a new paradigm for ensuring financial stability and increased accessibility of electronic and print publications." It was composed of representatives from the Society's leadership and staff, past or current Editors, publishers from the commercial and non-profit sectors, and an academic librarian. Participants were **Dale Benos** (Chair), **Walter Boron**, **Martin Frank**, **Margaret Reich**, **Edward Blaine**,

James Stull, **Lenne Miller**, **Brian Crawford**, **Beth Weil**, and consultant **Morna Conway**. The chief assumption accepted by the Task Force was that it should work with the financial goal established for the journal program by Council in 1995 to continue to produce 10% surplus over costs, including overhead and G&A costs in the future.

The Task Force developed the following main recommendations:

1. The journal pricing model should reflect the fact that content forms the base product that is marketed as a subscription or site license and that method of delivery (online, print) is the secondary product. It was determined that content management, the "value-added" of publishing, currently accounts for ~70% of the cost of the journals (i.e., editorial acquisition, peer review, copyediting, composition, archiving), whereas online delivery (i.e., tagging, transmission of electronic files to HighWire Press, mounting on the HighWire site, and provision of online services to the marketplace) currently accounts for ~10% of the cost of the journals, and print delivery (i.e., paper, printing, binding, mailing, postage) cur-

rently accounts for ~20% of the cost of the journals. These figures should be accurately reflected in the journal pricing model. The pricing model will be used for future years until print is insufficiently in demand to warrant sustaining it.

2. For the foreseeable future (5-10 years), there will be a continuing, although declining, demand for print delivery and a growing demand for online delivery. The Task Force recommended that the APS recognize the continued duality of media and give the market options to purchase online only, online plus print, or print only.

3. The Task Force recommended that legacy data should begin to be put online as quickly as possible.

Council approved the journal pricing model.

Council approved a plan to put the past 10 years of articles online in 2001.

Public Information/Communications Task Force

The Task Force on Communications/Public Information was estab-

Task Force Reports

lished by the Strategic Plan to “determine how to educate the public about the ways physiology leads to a fundamental understanding of function, improving health and curing disease” and to “determine how to enhance the image of physiology in the educational environment.” It was composed of individuals who had participated in the Strategic Planning Meeting and recommended developing a more formal public information program for the Society, the person who spearheaded the public information efforts for the recent APS Conference on “The Integrative Biology of Exercise” and individuals who participated in those efforts, as well as a journal editor. Participants were **Hannah Carey** (Chair), **Greg Fink**, **Lincoln Ford**, **David Harder**, **J. R. Haywood**, **Donna Krupa**, **Alice Ra’anan**, and **Martin Frank**.

The Task Force recommended that the APS proceed in phases toward the development of a communication strategy and the possible establishment of an in-house communications office. It was estimated that at least 3-5 years would be needed to develop messages and materials and see what kind of response is generated from initial promotional efforts.

Phase 1

1. Determine the best way to define physiology in ways that will elicit positive responses from three crucial audiences: the general public (including Congress); scientists in general (including funding agencies); and scientists who could identify themselves as physiologists. This will entail market research through focus groups and message testing using an outside consultant.

2. Develop materials for distribution to media in conjunction with meetings, journals, awards, education, and other outreach efforts.

3. Develop message materials to become part of an APS press kit and to be used by APS members in their own outreach to graduate students and the public.

4. Develop the APS communications infrastructure, including a database of APS experts and an expanded APS pressroom on the web. Distribute to APS members a reference card with guidelines for working with the press.

5. A one-day conference or workshop should be organized that focuses on the need to establish training programs in translational physiology to meet needs for the genome era. The goals of the workshop would be 1) to assess the need in academia and industry for individuals who understand traditional physiology in the context of molecular biology and genetics, and 2) to develop a plan of action to meet that need.

Phase 2

APS should work to promote physiology to the general public, the scientific community, and physiologists using the messages and materials developed. Initiatives may include: 1) The “Genes to Health” revisited, 2) media training for a cadre of APS leaders and senior staff, 3) outreach on use of animals in research, and 4) continuation of media outreach in conjunction with meetings, journals, awards, and other outreach efforts

The APS Council approved proceeding with Phase 1 of the Task Force’s recommendations.

Physiological Genomics Task Force

The Physiological Genomics Task Force was established by the Strategic Plan as a result of an objective to “create a Task Force on Sections and Groups to consider formation of groups on physiological genomics and translational research.” Council later decided to split this Task Force into three task forces: a Physiological Genomics Task Force and a Translational Research Task Force, which would convene first and begin developing their recommendations, to be followed by the Task Force on Sections and Groups to consider the issues facing existing sections and groups. The Task Force on Sections

and Groups will convene later this year.

Participants in the Physiological Genomics Task Force were **William W. Chin** (Chair), **Allen W. Cowley, Jr.**, **Craig H. Gelband**, **Steven R. Gullans**, and **Curt D. Sigmund**, all of whom are members actively working in the field of physiological genomics.

Their major recommendations are as follows based on the objectives set forth in the Strategic Plan.

Objective 1. Education of APS members in basic and applied physiological genomics

a. Designate an additional workshop or other session for a “hands-on” or “how to do” physiological genomics mini-course at EB.

b. Continue to pursue an “ad hoc” oral session at EB based on abstracts indexed with key words relevant to physiological genomics.

c. Designate additional symposia and Featured Topics slots for physiological genomics for future EB meetings and assure that these events, abstracts, and proceedings are published in *Physiological Genomics*.

d. Continue support of regular APS-sponsored conferences on *Physiological Genomics*.

Objective 2. Establish an Interest Group in Physiological Genomics

Develop and foster an interdisciplinary, intersectional group within the APS focused on physiological genomics. This group should seek to initiate a website, provide information about the field, encourage and foster development of symposia and featured topics and abstract submissions to the EB meeting, and stimulate collegiality at EB in an informal setting.

Objective 3. Augment Impact of Postdoctoral Fellowship in Physiological Genomics

Continue the Society’s efforts to enrich fellowship support for students and fellows interested in physiological genomics, with provision of higher visibility for its recipients at EB.

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Task Force Reports

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Objective 4. Highlight physiological genomics in APS journals

Reviews, “news and views,” and perspectives articles should be invited for publication in the journal *Physiological Genomics* and/or in each of the other APS publications; these could be “repeats” of the same article in multiple journals or several articles in a series.

Objective 5. Liaison with NIH, etc. in Programs in Genomic Applications (PGAs)

Interact and partner with governmental and other funding agencies to co-develop opportunities to foster research interest and activity in physiological genomics among physiologists. These programs, such as the one funded by the NHLBI, are funded at a level of \$35 million annually, starting in October 2000, and have educational components as their mandate. These components will be looking to make presentations at national scientific meetings and carry out how-to workshops.

Council accepted the report and will begin implementing the recommendations. A meeting will be set-up for a new Physiological Genomics Group at the EB 2001 meeting.

Translational Research Task Force

The Translational Research Task Force was composed of members who are actively involved in translational research. Participants were **Steven Hebert** and **John Hall** (Co-Chairs), John Geibel, and **Jeff Sands**.

Their goals based on the Strategic Plan were as follows: 1) to ensure that physiology reasserts itself as the discipline that links basic sciences and clinical medicine, and 2) to promote interdisciplinary research that rapidly translates advances in basic science to clinical research. Their objectives were: 1) to dramatically increase the prestige of physiology departments in medical schools, 2) to highlight translational research in APS meetings and publications, 3) to encourage physiologists to develop interdisciplinary research teams that bridge molecular and cellular physiology, organ system physiology, and clinical research, and 4) to promote translational research as a viable career for physiologists.

The following is a list of the major action items developed by the Task Force.

1. Promote instruction of physiology at all levels of medical education. This would include:

a. promoting the teaching of basic medical physiology by physiology departments and in the clinical years of medical school and in the postgraduate medical education.

b. Promoting the inclusion of pathophysiology in medical curricula as well as clinical research in physiology PhD training programs.

c. Promoting the mentoring of young clinical faculty and residents in physiology departments.

d. Promoting MD-PhD training programs in physiology departments.

2. Highlight translational research by:

a. Developing stronger programming ties with American Federation for Medical Research (AFMR) at EB.

b. Developing translational research conferences that bridge physiology with clinical medicine, i.e., obesity, imaging.

c. Sponsoring and/or endorsing satellite meetings at clinical meetings or any meeting that highlights physiology in medicine.

d. Highlighting translational research in APS journals.

e. Targeting clinical scientists in a membership campaign.

f. Developing programs to encourage medical residents to spend elective time in physiology laboratories.

3. Encourage interdisciplinary research by:

a. Sponsoring workshops at EB that are aimed at overcoming barriers to interdisciplinary research and that provide guidance on building interdisciplinary research teams that are capable of attacking major medical research problems.

b. Encouraging NIH funding of grants that require a multidisciplinary approach, including participation by basic and clinical scientists.

c. Developing alliances with private industry to sponsor pre- or post-doctoral training in translational research.

4. Promote translational research as a career for physiologists by highlighting opportunities in translational research at career opportunities workshops/programs at the EB meeting.

Council accepted the report of the Translational Research Task Force, encouraging the Task Force to expand in size and to continue to meet to refine its action items.

APS Annual Business Meeting and Award Presentations

Tuesday, April 3
5:30-7:00 PM, Peabody Ballroom D

Personal Reflections

(continued from page 1)

Cruelty to Animals felt compelled to observe that in spite of numerous violations of National Institute of Health guidelines, such as substandard laboratory conditions and record keeping, the baboons used did not suffer because of the infractions.

Later, in PETA's newsletter, the person who had stolen several animals from my own school's animal quarters a few weeks after the medical school raid stated, "I had the additional incentive of knowing about two veterinarians at the school, Adrian Morrison and Peter Hand, who had traveled last year to Maryland to appear in court and defend yet another infamous experimenter, Dr. Taub (23)." Clearly, PETA had not forgotten me.

The stakes rose, though, after I agreed to chair the Committee on Animals in Research of the Society for Neuroscience in November 1987. The Society for Neuroscience, then about 13,000 strong and now numbering over 20,000, had taken the lead with the American Physiological Society in countering the animal-rights threat; for it was our members who were bearing the brunt of the attack, particularly the brain scientists.

I was determined to do a good job—and did; too good for my own good eventually. But I felt compelled to carry the fight forward because even as late as 1987, ten years after the publication of *Animal Liberation* (32), the book that became the "bible" of the animal-rights movement, relatively few scientists, or even organizations representing them, were resisting the anti-science forces. Indeed, in those days I used the analogy of the British Spitfire pilots who had held off another determined (and evil) enemy in the Battle of Britain: a few of us were holding on waiting for the big guns to come to our aid. (Unfortunately, they have yet to appear in any numbers!)

Bullying me into silence was the ALF's purpose. Ingrid Newkirk, nation-

al director of PETA at the time and a major apologist for the ALF, made this very clear in *The Village Voice* article published a few weeks after the raid. "PETA intends to use Morrison to persuade other vivisectors who were heartened by his strong stand on animal research that it doesn't pay off," says Newkirk. "Now the spotlight is on him and what happens next will deter others who might want to follow in his footsteps (26)."

What stimulated the order to silence me? Well, according to that same article, the raid revealed I had written over 300 letters urging on colleagues, challenging misstatements by the media and certain politicians, arguing against overly restrictive legislation and probably more. I cannot verify the accuracy of the count because that stolen correspondence (Xerox copies we are told) is in PETA's hands.

In 1989, however, I clearly went too far in the movements' eyes. Three incidents quite likely made someone say, "Enough!"

The first involved publicly defending a researcher at Texas Tech University, John Orem, who had been attacked by the ALF and then vilified by PETA in July 1989 (14). Then, only a few months later, the Foundation for Biomedical Research in Washington, DC asked me to debate PETA co-founder Alex Pacheco on a radio talk show via telephone hook-up. During that debate, I revealed that one of Taub's monkeys that had been removed from his laboratory had become very debilitated over time and was near death. PETA and their associates were keeping them alive by court order, seemingly to keep a famous case alive. Pacheco was very, very angry because I had revealed the monkey's condition to the public. He pleaded ignorance of the monkey's condition.

But my fate was sealed, I believe, by interfering with an animal-rights course being taught to young children—right under my nose in the basement of my

school!—in a summer program conducted by the University of Pennsylvania. The movement had by then turned its attention to the schools. They were committed to a long campaign and were looking to the future before we were. One of their representatives was busily at work at Penn.

During the summer, and on Saturdays during the rest of the year, children were participating in the Discovery Program at Penn, which offered courses on various subjects. One of these, called "Animal Welfare and Human Intervention," had been given for a couple of years and was, not surprisingly, popular with the middle-school children taking it—except for one 12-year-old girl. She was the daughter of scientists, a participant in 4-H clubs—and was very discerning. She complained to her mother that the course was badly skewed toward the view that animal use is wrong. Her mother had alerted friends at the university.

Asked to review the course by the university veterinarian, a colleague and I found that often the course materials were straight from the animal-rights literature, even including a boycott list comprised of 54 volunteer health agencies purportedly supporting research using animals. Included were the American Cancer Society, American Heart Association, American Diabetes Association, and Cystic Fibrosis Association. We found the teacher (later identified as an employee of the American Anti-Vivisection Society) to have been deceptive and the director of the program, ill informed. The program director had been hoodwinked; for even though she and the teacher had an agreement: "No discussion of animal research"—the course materials said otherwise.

Exactly one month after our disagreement with the course had been made public the ALF staged their raid on my laboratory. They were, of course, stupid for attacking me in the way they did. Instead of focusing on my research and

Personal Reflections

attempting to characterize it as cruel and unnecessary at the outset, the scenario for all earlier (and subsequent) attacks on other scientists, they made certain that everyone knew they were punishing me for speaking out against the movement's attack on biomedical research. Obviously, they counted on frightening me into silence, thus, removing a persistent and, it would appear, effective opponent.

Consequently, there was no hesitation—and could not have been if the university stood for anything—on the part of the President and Provost to issue a statement to the press deploring the attack against me. Had there been allegations about the nature of my research, I believe the immediate reaction on the part of university officials would have been to ask: “Well, what is Morrison doing in his laboratory anyway?” An investigation would have followed, and a defense of my work would have been lost in the news days or weeks later—and I would have been left to suffer continuing harassment with the added indignity of being suspected having done at least something wrong to have deserved the attack. After all, “Where there's smoke, there's fire.”

Immediate proof that I was “lucky” in the way I was attacked, at least as far as my relations with the University of Pennsylvania officials go, came in the aftermath of an incident at our Department of Psychology. A PETA investigator, later an investigator for the Humane Society of the United States, had been working undercover in the department as a technician. He stole several rats from a research laboratory in the department and then went public, claiming mistreatment of them. The university's response: investigate the researcher and do nothing to the thief. Only after the researcher pressed the issue hard were charges filed. The court eventually convicted him and required him to pay for the market value of the rats (not the hours that went into their study) and do community service. The

offended researcher felt alone and unsupported. He must have felt doubly so given the attention I had received earlier: a press conference a few days after my break-in attended by university officials, a representative of the National Institute of Mental Health and one from the “incurably ill For Animal Research,” which is a patients' organization.

Meanwhile, I was hardly feeling jolly. The attack was frightening, mainly because of the attention focused on me, seeing myself the subject of newspaper articles and newscasts. Fame is no fun when you know you are famous because someone hates you. My head was above the crowd. A number of colleagues said they were right behind me, but my interest was in having people beside me, or better yet, in front of me.

Many efforts were made to frighten and discredit me. Two of the attempts to ruin my reputation were particularly despicable, but, fortunately, they were unsuccessful. PETA sent a letter with a copy of *The Village Voice* article to my neighbors, informing them that I was an animal abuser. My neighbors ignored or openly rejected the letter: one builds up credibility as the local Scoutmaster. A series of scurrilous articles on my contributions to science that were commissioned by the American Anti-Vivisection Society were laughed at by my colleagues. That society later protested publicly when the American Association for the Advancement of Science awarded me their Academic Freedom and Responsibility Award just a year after the raid.

A terrorist attack is debilitating. It required a year to handle the situation with equanimity. Yet, fear was not the worst of it. The lack of immediate outspoken local support in the early days from the veterinary school's administration and all but a few friends, colleagues and students—I received dozens of letters from friends and strangers from around the world—both angered and saddened me. Fortunately, my chairman

counseled me not to ask people to support me, for I would make them face their fear. That early silence was one of the worst aspects of the ordeal, and it took me several months to come to grips with what I then thought was unforgivable but now view as understandable. (John Orem suffered the same depressing lack of local support.) Indeed, Penn's Institute of Neurological Sciences awarded me its first Director's Award and hundreds at Penn signed a statement at the end of the year deploring the American Anti-Vivisection Society's attempt to destroy me.

A Decade Later

Ten years have passed. Some things have changed, but one thing remains the same: a continuing lack of interest of many scientists in confronting the animal rightists' attack on biomedical research, largely out of fear, I am sure. Terrorism works. Also, there is the all-too-human reaction of letting “George” do it. The understandable, if unhelpful, fear and disinterest of individual scientists is magnified by the woeful lack of significant action, even indirect, by large, powerful organizations such as drug companies. While one can appreciate why a company would also fear animal-rights terrorism—the attacks on officers and shareholders of Huntingdon Life Sciences in Britain provide a despicable example (19)—this does not excuse them from not contributing funds in far greater amounts than they presently do to poorly financed, understaffed support organizations, such as Americans for Medical Progress and the National Association for Biomedical Research/Foundation for Biomedical Research. For example, although the majority of the populace supports the use of animals in research, the annual budgets of the two major animal-rights organizations, HSUS and PETA, were still \$31,697,292 and \$13,438,018 in 1995. The three with anti-vivisection in their names, the American Anti-Vivisection Society, the

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National Anti-Vivisection Society and the New England Anti-Vivisection Society, had combined budgets of nearly \$4 million, more than quadruple the size of that of the Foundation for Biomedical Research (6). But expecting companies to contribute more is wishful thinking. I am certain that the depredations of the animal rights movement are simply calculated as being a part of doing business.

As for the federal government, it is essentially silent, only responding to letters protesting various scientists' research but never defending them publicly with one shining exception. When Dr. Frederick Goodwin headed the former Alcohol, Drug Abuse and Mental Health Administration and, later, the National Institute of Mental Health about ten years ago, he was outspoken in his condemnation of the animal-rights movements' depredations. Fred produced a number of educational brochures that were so popular the Humane Society of the United States (HSUS) led a deceptive campaign to eliminate two of them. He even invited me, a publicly maligned scientist, to be his Director of the Program for Animal Research Issues from 1991-1994.

The animal-rights organizations collect so much money because people really care about animals. Lurid descriptions of conditions in laboratories or claims that experiments are silly and wasting animal lives quite naturally generate funds from caring individuals who lack insight into what is really behind the fund-raising. It is, therefore, very important that researchers acknowledge their own concern for animal welfare.

I make it very clear when I speak to the public that I believe we have a strong obligation to behave decently to any animal under our control, and not just in biomedical research. We are the only species capable of recognizing our power and the obligations that go with it. To ignore these is to deny our humanity. A passage I somehow have remem-

bered from one of the horse books I read as a horse-crazy boy captures this sense of obligation simply and beautifully. The following comes from *My Friend Flicka* by Mary O'Hara, where Rob McLaughlin was talking to his elder son, Howard, about responsibility to animals. A wild mare, Rocket, was carrying the noose of a lariat around her neck because she had broken away from him and was impossible to catch. He worried the end might get caught causing the noose to tighten and choke her:

"What if it did choke her?" asked Howard. "You always say she's no use to you." "There's a responsibility we have toward animals," said his father. "We use them. We shut them up, keep their natural food and water from them. That means we have to feed and water them. Take their freedom away, rope them, harness them. That means we have to supply a different sort of safety for them. Once I've put a rope on a horse, or taken away its ability to take care of itself, then I've got to take care of it. Do you see that? That noose around her neck is a danger to her, and I put it there, so I have to get it off (21)."

Rob McLaughlin could have been speaking for researchers and other animal users. People generally want to do the right thing. Researchers, themselves, have ignored this fact and have tried to distance themselves, foolishly, from other animal users. They have too often fallen for the same kinds of lies about others who use animals, fur farmers, for example, that have been used against them. Nevertheless, I think the care of laboratory animals has improved as a consequence of stringent laws enacted in 1985 that are administered by the United States Public Health Service and the Department of Agriculture (16). Both agencies require strict accountability regarding the appropriateness of animal care during experiments. The recommendation that institutions have an oversight committee, an animal care and use committee that includes non-scientists and individ-

uals not associated with the institution, is now law. The exposés referenced in the first section, although greatly distorted by the animal-rights movement and a gullible press, drew attention to the need to assure that animals receive optimal care.

I am very much in favor of such oversight. Many excellent scientists, although as caring as the non-scientific public, lack training in veterinary medicine. They, their animals and their experiments benefit from the expert advice and oversight of veterinarians specializing in laboratory animal medicine. Scientists know how rapidly ideas and techniques change in their own area of expertise but, I wager, do not consider that events move rapidly in the field of laboratory animal medicine as well. Yet, this new knowledge can save scientists time and money and even improve the science (10).

Furthermore, having to demonstrate to a diverse committee that one has planned an experiment intelligently with thought given to welfare of the animals to be used can only improve one's experiments. With this system in place, laboratory animals are now receiving the best care humanly possible in my opinion, better than the general pet population. Of course, that improving animal care was not the aim of the animal-rights activists in the 1980's is tragically clear: laboratories continue to be destroyed and scientists harassed.

With official oversight, of course, comes the danger of stultifying bureaucracy. Currently, some US Department of Agriculture inspectors, I am told, can go beyond reason (or the Animal Welfare Act that directs them) in demanding the compliance of institutions. Local overseers are themselves overseen by the government and so are susceptible to the very human concern not to be accused of inadequacy. I believe that most scientists have experienced overly careful oversight: a committee can always find something wrong that demands some sort of

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response from the investigator. The healthiest response to bureaucratic excess is to regard it as “the cost of doing business,” rather than rail continually against the system. Both committees and investigators can make honest mistakes.

Concern for perfection in the treatment of laboratory animals extends well beyond the local committees of course. What I would call a “community of concern” has developed that attends frequent meetings centered on laboratory animals. The programs are rather repetitious, as are the names on the speaker lists. These include governmental officials and laboratory animal veterinarians, of course, as well as non-scientists who administer institutional animal care committees, but very few active scientists. Present as well, even on at least one of the planning committees for these meetings, are individuals representing organizations with a clear bias against research that harms animals in any way. The problem I see is that there is no provision for dialogue with scientists whose creativity is vital to medical progress. If scientists are not involved in a meaningful way with this increasingly powerful community, animal welfare regulation will always be seen as coercive, which does not benefit the animals. Perhaps such interactions could be achieved at the local level.

My belief is that underlying the admirable wish of many to treat animals as humanely as possible is a feeling of guilt: “What we are doing is wrong so let us at least do it as close to perfectly as possible.” At these gatherings the commendable concept of the “3R’s”—reduction, refinement and replacement with regard to the use of animals in research (28)—is repeated over and over again like a religious mantra. The Humane Society of the United States is capitalizing on this phenomenon with a well-publicized campaign to eliminate pain and distress in laboratory animals by 2020. Their program ensures more bureaucracy and promises no changes

in the pain and suffering of human beings.

There is a distinct danger that animals, and more to the point, the bureaucracy associated with their care, can become more important in the minds of regulators (in a day to day sense) than the humans the animals are destined to relieve from suffering. As Tannenbaum has observed, there is an increasing tendency among the “community of concern” to go beyond the traditional concern for welfare to a new paradigm of “well-being,” even “happiness,” however that might be defined, unwittingly leading us in to trouble. He notes that, “Wanting animals to live happy lives is wanting something most animals do not ordinarily have, something that can require special and sometimes very costly manipulations of their environments and lives (including good veterinary care)” (37).

“Fudging” the Data

These last concerns lead directly to some personal reflections on the maturation of my own thinking since 1990. I believe there is something useful to be learned here by those new to the problem but ready to address it. Perhaps my words will encourage them to respond with confidence to various claims and actions of the animal-rights movement. My ideas may be found in full in a recent collection of the thoughts of both scientists and philosophers (17).

I could not have spoken as boldly about the “community of concern,” or at least as coherently as now, in the early days of defending Taub nor even as late as 1990. The charges against us, i.e., biomedical researchers, were too overwhelming—we were engaged in an evil enterprise—even though I was sure in an unformed way that our critics were wrong in most cases. Philosophers, such as Peter Singer and Tom Regan, had published treatises demonstrating that humans could lay no claim to special treatment and so were unjustified in using animals in research (25, 32).

Others with medical credentials were presenting historical evidence demonstrating that claims for a key role for animals in the advances of medicine were greatly exaggerated and that a number of clinicians agreed. Even *Scientific American* allowed such an article on its pages as late as 1997 (1). Of course, I was certain all of this was nonsense, but one needed to respond with evidence. Gathering such evidence took time and required those willing to undertake the task.

We were fortunate that a few scientists bothered to examine the claims of the revisionists of medical history. Prominent among the former are the husband and wife team, Charles Nicoll and Sharon Russell (20); Neal Miller (15); Jack Botting, who wrote a long series of articles for the newsletter of the Research Defence Society in England and joined me recently in debunking the aforementioned *Scientific American* article (2); and Earnest Verhetsel (40). I have provided further debunking (17). Clear examples of obviously deliberate distortions, a bizarre “fudging” of the data will be cited later, but there are other aspects to discuss as well.

One has to consider the possibility that some of these revisionist commentators have little or no understanding of the process of science and how scientists think. For example, some seem to assume that scientists are wedded to the idea that animals are the ultimate for solving a scientific problem and that all other approaches are only secondary to animal experimentation. Because Leader and Stark presented evidence for the important role animals had played in the work underlying the awarding of many Nobel prizes in physiology and (12), Stephens of the Humane Society of the United States thought it necessary to point out how important other techniques had been to such work (36). But of course, what scientist thinks otherwise? Scientists use the best means available to solve a particular problem.

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Another example of naïve (one hopes) thinking appeared in the form of an entire book by Kenneth Shapiro, Executive Director of Psychologists for the Ethical Treatment of Animals. His thesis is that many physiological psychologists have been blindly and uselessly studying animals with the hope of unraveling the very serious eating disorders, anorexia nervosa and bulimia (31). Furthermore, the author reported that clinical psychologists never cited these papers. However, a review of the basic studies cited (and condemned) by the book's author and conversations with some of the authors revealed that their research was directed at understanding the basic physiological mechanisms of ingestive behavior. They were not conducting their research with these disorders in mind. In essence, the book's author had erected a straw man: basic researchers were harming animals searching for cures for anorexia nervosa and bulimia when, in fact, this was not at all the purpose of their research. Actually, one of the researchers dissected in the book had already noted that there was no suitable animal model for these very debilitating disorders (34).

A common argument found in the anti-research literature, including Shapiro's book, states that animals are simply not suitable for modeling human disease: animals and humans are not identical. The latter is true, but it does not recognize that we share more features than not, from the sub-cellular level to that of systems and that mechanisms of disease are studied at all levels of organization of organisms. The most obvious demonstration that we are, in fact, brothers under the skin is our sharing of many diseases. As I stated in a debate with one of the physicians so strangely committed to the theme that animals and humans differ too much for extrapolations from one to the other, only his lack of a tail and fur would distinguish him from a rabid dog should he not seek immediate treatment following a bite by the poor beast.

Worse than ignorance and confusion, though, are the cases of misrepresentation of the writings of scientists, either their conclusions or their actual words, that I mentioned earlier. When alerted to how their thinking has been misinterpreted, scientists will write to journals to correct the record (29). The patently deliberate rewriting of the words of others is simply astounding. For example, in order to persuade the reader that animals did not contribute to the development of a heart-lung machine, Brandon Reines, a veterinarian, constructed one paragraph out of three, omitting the description of the use of dogs in the middle paragraph (16). In another case, Neal Barnard, a psychiatrist who has been medical advisor to PETA, developed a paragraph from sentences in a report on AIDS research that reached a conclusion on the need for animal models that directly contradicted the actual sense of the document (20). Most recently, a physician trained as an anesthesiologist, Ray Greek, has continued the tradition of using the writings of scientists to suit his purposes (9; Sir Roy Calne, personal communication). Clearly, the cause for which these individuals work is greater than Truth.

An Unnatural World

Although time-consuming, revealing the mistreatment of the scientific literature by these medicine men and others is quite straightforward. What I found harder to address was the challenge presented by philosophers who had taken up the animal-rights banner. Frankly, as one untrained in philosophy I was intimidated. I remember exulting in the arrival of an excellent book written by philosopher Michael A. Fox, who presented the case for the appropriateness of using animals for biomedical research clearly and brilliantly (7). Then, to my chagrin, he recanted what he had written, urged on supposedly by a radical, feminist friend (8). That served me right: why did a scientist have to have someone tell him how to

think about this issue?

Intimidated at first, I soon realized that one could construct any world he wished with words. The animal-rights movement's major philosophers, Tom Regan and Peter Singer, had done just this (25, 32). In addition, to accomplish his task, utilitarian Peter Singer had to misrepresent the value of animal research to reach the conclusion that research causes too much pain to animals for the medical benefits it brings to human beings (27). Because he follows the rights branch of ethics, Regan did not need to resort to this tactic. And then, as Vance (39) informed us, they proceeded to demolish each other's world! I credit Vance with opening my eyes to the silliness of it all. It is more than silly really, for such thinking has led to evil in the form of a diminution in the unique value of each human being in the minds of some and attacks on life-saving research (17).

In any event, the world they have created is, in the words of my plumber, crazy. [*Conservation* writer Richard Conniff put it more elegantly when he wrote that they had "elevated ignorance about the natural world almost to the level of a philosophical principle (5)."] It is a world these philosophers and the animal-rights leaders who worship their ideas refuse to live in themselves, for none of them have done the moral thing and publicly rejected the use of medical knowledge based on animal research. If they can reject eating meat because slaughtering animals is wrong, they must also reject medicine (35).

What is the nature of their world? Simply put, Singer reduces mankind to its capacity to suffer pain, which is a feature of animal life in general. Any use of animals that harms them simply because they are animals is evidence of "speciesism," a deliberate play on racism. As a utilitarian, he does not speak in terms of rights. Indeed, he rejects that idea because rights are a political concept. On this last point we agree. Of course, Singer is seriously out

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of tune with the realities of the natural world as Connif pointed out so humorously.

Regan, too, rejects the rational, natural world with this famous statement from his book, *The Case for Animal Rights*: “If that (abandoning animal research) means that there are some things we cannot learn, then so be it; we have then no right against nature (because nature is not a moral agent) not to be harmed by those natural diseases we are heir to (25).” This conclusion is reached because animals have “inherent value,” which bestows the right not to be interfered with. Anyone who has watched a cat playing with a mouse knows that the animal world does not play by Regan’s rules. To wind up with the most intelligent brain in the world and then not use it to improve one’s chances of survival would be ridiculous.

Philosophers and others have rejected these ideas quite nicely (3, 4, 11, 22, 30). Ironically, Fox’s discussion remains one of the easiest to follow if one is not trained in philosophy (7). My own rebuttal has been published in extenso, and I close with this simple, unelaborated quotation from that work (17):

“Several beliefs or principles have governed my life as a scientist using animals to solve the questions he addresses. Foremost, I believe human beings stand apart in a moral sense (they know right from wrong; they care for other species—to mention two obvious characteristics) from all other species, while I also believe them to be a product of the same physical, evolutionary forces operating on all life. Further, I am certain that animals have been and will continue to be indispensable agents in advancing medical knowledge for many years. Thus, my position is that using animals in biomedical research is necessary scientifically, justified morally and required ethi-

cally.

“Clearly, all scientists using animals in ways that harm them must have similar views unless one is prepared to believe many are sadists. We can immediately dismiss that as a preposterous proposition. Interestingly, belief in the appropriateness of animal use in research among biomedical researchers does not appear to depend on particular religious beliefs. I feel certain that one could elicit a wide variety of religious views, from the formally devout to avowed atheists among scientists who choose fellow human beings before other species, even chimpanzees, although I know of no survey to support this statement. While God may ultimately be behind every research scientist having a belief in the sanctity of human life (whether the scientist recognizes it or not), He rarely enters modern ethical conversations on the question of animals’ rights. When reference to God does appear in discussion, it is usually in animal rightists’ pejorative reference to the idea in Genesis that Man was given dominion over the natural world. But without God’s blessing how can one defend, for example, the use of perfectly healthy animals for research in place of severely brain-damaged infants? This is, in so many words, a challenge frequently raised by the animal-rights movement (for example, Peter Singer). My response to this particular concern: having stood on the grounds of Auschwitz, I am ever mindful that one man’s Jew, gypsy or homosexual can be another man’s guinea pig. If for no other reason, then, I can argue self-preservation. I speak, really, of self-preservation in the larger sense, of protecting the weak and helpless from those who consider themselves competent to

decide the fate of others based on their view of what is “best.” I abhor (Singer’s) idea that ‘we cannot justifiably give more protection to the life of a human being than we give to a non-human animal, if the human being (a brain damaged infant for example) clearly ranks lower on any possible scale of relevant characteristics (33).’”

Acknowledgements

I thank all those individuals who have provided moral or financial support during this interesting decade of my life.

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Membership

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APS is excited to announce the launch of the Members Only section of our web site. Access to the area can be gained by clicking on the red button at the top of the APS Home Page, <http://www.The-APS.org>.

This site will allow you to modify the contact information that the Society has stored for you in our database. You will also be able to keep your APS Member Questionnaire information and section affiliations up to date and view your account. Through the Members Only site you will also be able to search for colleagues by name, by region, or research interest area; obtain their contact information; and, if desired, e-mail

them with a message showing your personal e-mail address.

This site will allow you to manage the section listserv lists to which you are subscribed. This will eliminate the confusing commands needed to subscribe or unsubscribe and prevent non-members from joining the lists. Along with listserv management, the Members Only section will also provide access to a bulletin board system and a chat area.

In the coming months, the Members Only site will allow you to pay your annual dues and subscribe to journals online.

Click on the Members Only button on the APS home page [\[APS.org\]\(http://www.The-APS.org\) to enter the site. Your login is your e-mail address as listed in our database and your password is the member ID number found on your membership card. If you forget your password \(member ID number\), you may enter the e-mail address we have for you in our database and your password will be emailed to that address.](http://www.The-</p></div><div data-bbox=)

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APS Collaborates with UC-Berkeley's Project WISE to Develop Interactive, Web-based Science Activities

The American Physiological Society launched a new collaborative effort with University of California at Berkeley's Project WISE in October 2000 to develop inquiry-based, interactive, online science lessons for middle and high school students. Under the direction of APS Education Officer, Marsha Lakes Matyas, educators and researchers in the APS *Frontiers in Physiology* and *Explorations in Biomedicine* programs will use Project WISE tools and techniques to create cutting-edge lesson integrating educational technology, recent research, and key concepts in life sciences. Local Outreach Teams (LOTs) will disseminate the online resources through local workshops. The project will involve tribal college faculty, middle/high school teachers, and APS members, collaborating with Project WISE and APS Education Office staff.

Through a partnership of teachers, technology experts, scientists, and pedagogical researchers, Project WISE has emerged as an innovative, web-based learning environment that presents educators with an opportunity to integrate effective teaching strategies within the framework of required state standards, and technology resources. Project WISE activities are designed to make science accessible through scientific models; make student thinking visible through interactive simulations and argument-representation tools; help students to learn from one another through online discussions; and encourage life-long learning. At the July 2000 APS Summer Retreat for *Frontiers* and *Explorations* participants, Jim Slotta and Brian Levey, of Project WISE met with APS Education Office staff and Summer Research Teachers (SRTs) to demonstrate the development of online activities using a variety of cutting-edge WISE activity development tools.



Foreground to background: At the APS Summer Retreat in July 2000: Jim Slotta, Project WISE; Marsha Lakes Matyas, APS Education Officer; Martin Frank, APS Executive Director; and Brian Levey, Project WISE.

In the fall of 2000, *Frontiers* and *Explorations* participants received Curriculum Development-Summer Research Teacher (CD-SRT) fellowships to develop online interactive inquiry-based activities in conjunction with the UC-Berkeley's Project WISE. The CD-SRTs will also serve as mentors for new SRTs, lead ongoing online discussions in critical teaching strategies, and conduct workshops at national teacher conferences.

In 2000, the *Frontiers* program is supporting two teams of CD-SRTs: Nancy Kellogg, (SRT '97) of Brawley Union High School, Brawley, CA, and Cathy Box, (SRT '99) of Tahoka High School, Tahoka, TX comprise one team; and Lesli Adler, (SRT '90) of T. S. Wootton High School, Rockville, MD, and John Nishan, (SRT '95) of Manchester High School, Manchester, CT comprise the second team. Barbara Arrowtop, (SRT '99) of Heart Butte School, Heart Butte, MT, and Kathy

Knudson, (SRT '98) of Polson Middle School, Polson, MT serve as 2000 *Explorations* CD-SRTs.

The *Frontiers* and *Explorations* programs include both a Summer Research Program and a LOT Program. The Summer Research Program for science teachers and faculty typically involves 20-25 teachers nationwide in biomedical research, an exploration of the National Science Education Standards, effective teaching strategies, and curriculum development. The LOT Program allows teachers and researchers at the grassroots level to plan and conduct in-service programs for the dissemination of hands-on, inquiry-based, learning cycle units in physiology to local teachers.

Initiated by the APS in 1990, *Frontiers in Physiology* is in its eleventh year. Current funding is provided by the APS, the National Institutes of Health, National Center for Research Resources (NCRR) Science Education Partnerships Award (SEPA), and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). In operation since 1997, *Explorations in Biomedicine* is funded by the APS, and the NIH/National Institute of General Medical Sciences (NIGMS) Minority Access to Research Careers (MARC) program. Both programs continue to expand APS educational outreach with extensive dissemination of program materials and development of interactive activities online and on CD-ROM.

For more information about the APS education programs and resources, please visit the APS website at <http://www.the-aps.org/education.htm> or contact the APS Education Office at 301-530-7132, or email: educatio@aps.faseb.org. More information about Project WISE is available at <http://wise.berkeley.edu/welcome.php>. ♦

Education

APS Participates in NABT 2000 Conference

The 2000 National Association of Biology Teachers conference convened October 25-29 in Orlando, FL, with the APS Education Office in attendance as K-12 workshops sponsor and exhibitor. The NABT annual conference is attended by more than 1,500 K-12 and undergraduate science educators and professionals. It provides opportunities to examine cutting-edge teaching materials, science and laboratory equipment, and computer software and hardware and to participate in workshops and symposia.

APS Education Officer, Marsha Lakes Matyas gave an invited featured presentation, "Integrating Inquiry, Equity, and Technology in the Classroom." Her talk explored research on technology use in K-12 science education, including an update on the "digital divide" in the use of technology by students from lower income and/or rural communities. Participants were challenged to consider three areas—

inquiry-based learning, equity issues, and effective technology use—in designing curriculum.

With April Gardner, University of Northern Colorado, Matyas also presented "Inquiry Approach, Authentic Assessment, and Science Role Models: Tying it All Together," a hands-on workshop for undergraduate faculty providing more than 35 life science activities, each related to a science role model. Activities involved inquiry approaches, problem solving, cooperative learning strategies, and ideas for authentic assessment. Participants received the APS publication *Women Life Scientists: Past, Present and Future*, and APS Education resources, including the *Resources for K-12 Science Education 2001* CD-ROM.

"Everyday Inquiry Activities," was presented by APS staff member, Alta Wallington, and *Frontiers in Physiology* Summer Research Teacher ('97) Nancy Kellogg of Brawley Union High

School, Brawley, CA. In this workshop for middle and high school teachers, Kellogg modeled the teaching of "Animal Research Project," an activity that simulates the application, approval, funding, and publishing/presenting processes employed by professional research scientists. Kellogg also presented "Sarco-what? Sarcomere!" an activity where students discover, through model-building and research, the microscopic structure of a sarcomere, the functional unit of skeletal muscle, and the sliding-filament mechanism process of muscle contraction. Workshop attendees received copies of the activities and APS Education resources, including the *Resources for K-12 Science Education 2001* CD-ROM.

For more information about APS Education programs and resources, please visit the APS website at <http://www.the-aps.org/education.htm> or contact the Education Office at 301-530-7132, or email: educatio@aps.faseb.org.

APS Seeks Higher Education Programs Coordinator

As a result of the recent growth of APS programs in the areas of undergraduate, graduate, professional, and continuing education, the APS Council has approved the addition of a Higher Education Programs Coordinator to the APS Education Office staff. Under the direction of the APS Education Officer and the Executive Director, the Higher Education Programs Coordinator will plan, organize, and implement activities to promote and improve physiology education at the undergraduate, graduate, and professional levels, including:

- development and management of the APS online Archives of Teaching Resources for undergraduate, graduate, and medical education;

- coordination of programs and activities of the APS Careers in Physiology Committee and the APS Women in Physiology Committee, including the

- Women in Physiology Mentoring Program, Undergraduate Summer Research Fellowships program, and career information resources in print and online;

- implementation of the annual survey of recent doctorates in physiology;

- coordination of activities to improve undergraduate physiology education, including activities for undergraduate faculty and students;

- development of new initiatives for professional development for physiologists at the graduate, postdoctoral, and professional levels, including online resources and courses; and

- development of grant proposals, reports, and articles on APS higher education activities in collaboration with the APS Education Officer.

This is an entry-level position, with responsibilities and salary commensurate with an assistant professorship.

Applicants should have a PhD (preferred) or Master's degree in physiology with experience in higher education or a PhD in education with an emphasis on physiology education. Applicants should be able to provide evidence of:

- writing skills in terms of reports and/or grant proposals;

- experience in teaching and/or research in higher education;

- knowledge of the types of resources available for professional development on the Internet;

- experience in the development of basic web pages;

- experience in the use of spreadsheets and/or databases;

- skills in survey use and data analysis; and

- understanding of key issues in undergraduate and graduate physiology education.

Education

Because the position entails developing materials for online archives and online courses, the applicant should be proficient in the use of Microsoft Word, Excel and/or Access, email, and Netscape and/or Internet Explorer.

S/he should have some experience in using a web page editor.

Interested candidates should submit a letter of interest, curriculum vitae, and writing samples to Marsha Lakes Matyas, PhD, APS Education Officer,

9650 Rockville Pike, Bethesda, MD 20814. For more information, contact Dr. Matyas at mmatyas@aps.faseb.org or 301 530-7132. APS is an equal opportunity employer. ❖

Explorations in Biomedicine Funded for Five Years

Thanks to generous support from the NIH/National Institute of General Medical Sciences (NIGMS) Minority Access to Research Careers (MARC) Program, the *Explorations in Biomedicine—Native Americans and Research Careers* program will continue for five additional years. *Explorations* is a collaborative program of the APS and the American Indian Research Opportunities (AIRO) consortium of Montana tribal colleges and Montana State University-Bozeman. The program is an outgrowth of a visit in May 1990 to Little Big Horn College, a tribal college located in Crow Agency, MT, by **Robert Carroll**, East Carolina University, sponsored by the APS. An article about this visit appeared in *The Physiologist* (Carroll, R.G., "Minority Recruitment: Physiology Instruction on the Crow Indian Reservation." *Physiologist* 33(4): 77-78, 1990). In 1996, with support from the NIGMS MARC program, the APS launched *Explorations in Biomedicine*.

Explorations works with the science faculty at Montana's seven tribal colleges and middle and high schools serving Native American students to create an atmosphere encouraging science studies, the exploration and pursuit of biomedical research careers, and interaction with biomedical researchers across the country. The goals are to increase interest and participation in biomedical research careers, expand career options, and improve science education for Native American students. *Explorations* accomplishes these goals through three major activities -- the Summer Research Program, the annual Fall Retreats, and the Minority Travel Fellowships.

The Summer Research Program is

coordinated in conjunction with the APS *Frontiers in Physiology* program. Teachers and faculty receive summer fellowships in physiology research laboratories with APS researchers across the country, attend a corresponding Summer Retreat with colleagues nationwide, attend Experimental Biology the following spring, and develop online and print laboratory activities. *Explorations* will continue to offer opportunities to learn about scientific research and activity development and will enhance those opportunities by focusing on the integration of inquiry, equity, and technology in science teaching. Summer Research Teachers (SRTs) will explore websites with outstanding teaching resources, discuss readings about effective teaching and learning, and reflect on their own teaching, thus expanding their repertoire of teaching methods (pedagogy).

SRTs may continue participating in other Education Office programs after their fellowships end. Past fellows organize Local Outreach Teams to disseminate laboratory activities in their home school districts, participate in online curriculum development projects, and present activities at national meetings of the National Association of Biology Teachers and the Society for



An *Explorations* participant uses web technology to develop a teaching activity.

the Advancement of Chicanos and Native Americans in Science

The annual Fall Retreats provide professional development in locations throughout Montana for science educators who work with Native American students. The Retreats focus on specific topics, providing ready-to-use classroom activities and emphasizing curricular enhancement tools and skills. Attendees also build working relationships with APS members who serve as "physiologists-in-residence" at the Retreats.

The Minority Travel Fellowships allow a small number of Native American students and science faculty from Montana tribal colleges to attend Experimental Biology meetings. Travel expenses are paid and fellows participate in a Fellowship Reception and a luncheon. Usually this is their first time at a scientific meeting, and fellows participate fully by attending scientific sessions and poster sessions, as well as symposia and workshops on careers and mentoring. Many of the awardees present posters on their own research. Fellows are paired with APS members who serve as their mentors during the meeting, to facilitate interaction with other scientists and students at EB.

Through this ongoing project, the APS will enhance and expand its collaboration with AIRO and its work with Montana students and faculty to enhance life sciences education at Montana tribal colleges and surrounding reservations. For more information on *Explorations*, please visit the APS website at <http://www.the-aps.org/education/expl/index.htm> or contact Marsha Lakes Matyas, APS Education Officer, at mmatyas@aps.faseb.org or 301-530-7132. ❖

ACDP Distinguished Service Award

Johnson Receives ACDP Distinguished Service Award

William Dantzler, President of the Association of Chairs of Departments of Physiology (ACDP), presented these remarks during their recent fall meeting in Tucson, AZ.

It gives me very great personal as well as professional pleasure to present this year's Distinguished Service Award of the ACDP to Paul C. Johnson, Professor Emeritus of Physiology at the University of Arizona and currently Adjunct Professor of Bioengineering at University of California-San

Diego. I know that many of you (especially the cardiovascular people) know Paul well, but others (especially the younger chairs among you and guests) may not know him as well. Therefore, in presenting this award, I want to give you a little background on him, first on his scientific achievements and then on his service achievements, especially those that I feel make him especially deserving of this award.

Paul comes from the upper peninsula of Michigan and he received his undergraduate degree (in physics) and his PhD (in physiology) from the University of Michigan. And, like many people from that institution, he remains a very loyal alumnus. Paul then did postdoctoral work with Ewald Selkurt at Case Western Reserve (it was just Western Reserve then) and then moved with Selkurt to the Physiology Department at Indiana University Medical School where he remained until he moved here to the new University of Arizona College of Medicine to become the Founding Head of our Department of Physiology in 1967. He remained Head for 20 years. In 1994, he became Professor Emeritus, only to move to San Diego to continue his work in the Bioengineering Department as Adjunct Professor. Paul never really stops.

As many of you know, Paul's



ACDP President William Dantzler presents the ACDP Distinguished Service Award to Paul Johnson.

research involves studies on the microvasculature. He has made notable contributions in the areas of autoregulation, myogenic control, reactive hyperemia, and local factors regulating microvascular blood flow in general. I have always admired the elegance of his experiments and the way in which he developed or modified quantitative techniques that made his seminal studies possible—notable among these were his early use of a flying spot microscope for measuring blood vessel diameter, the dual-slit method for measurement of red blood cell velocity in microvessels, and, most recently, quantitative methods for determining microvascular networks. It is really these methods, developed to help him answer specific questions, that have made his work so notable. As I noted, he hasn't stopped working. I note that he has two R01s at present and is the chair of the doctoral committee of another graduate student.

For his achievements in research, Paul has received the Landis Award from the Microcirculatory Society and the Wiggers Award from the American Physiological Society. He has been elected a Distinguished Fellow of the International Institute for Microcirculation and an Honorary Member of the Hungarian Physiological Society. He has also been awarded an Honorary Doctor of Medicine Degree from the

University of Limburg in the Netherlands.

Now I want to turn to Paul's service accomplishments, although surely his research accomplishments themselves are an outstanding service to the profession. In addition, however, he has served the American Physiological Society as a Member of Council, as an Associate Editor of the *American Journal of Physiology*, and, most notably, as Chair of the Publications Committee. Anyone who knows anything in detail

about the publications of the Society, knows that this is a terribly time-consuming and usually thankless job. He has also served as President of the Microcirculatory Society. But of greatest importance to me personally and to us, who serve as department chairs and try to build our departments, is the work he did in establishing and developing the department here at Arizona. I guess you can say that he led a few of us into the desert and somehow we managed to create a Department. As Doug Stuart and I have often said to each other, if we had really thought about what we were doing (or hadn't been so naïve), we would never have left more established institutions to move into the wilderness. But Paul convinced us that it was a good move and we never thought any further. The rest, as they say, is history. Maybe Paul hypnotized us (or maybe it was the balmy air and the smell of orange blossoms when I visited at the end of March after a snow storm in New York City and cold rain in Indianapolis where I met with Paul). However, for me the most important aspects of Paul's leadership of the Department were his beliefs in quality and the way in which he led by example. Paul absolutely believes that both teaching and research are equally important and that they complement one another (a belief that I share—perhaps another reason why I moved

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with him). He also believes that it is the quality of the research and teaching (not the quantity) that is most important. And, he led by example. He always carried his full share of work and set an example by the quality of and dedication to his teaching and research. He was (and still is) a model for all of us to follow.

It gives me great pleasure to present this award to Paul Johnson.

Fifty Years of Physiology: A Personal Perspective

The following are the remarks made by Paul C. Johnson in accepting the award.

Thank you very much Bill for that most kind introduction. Since we worked together for 27 years Bill Dantzler knows a lot about me so I am grateful to him not only for what he said but for what he could have said but didn't!

I am very grateful to the ACDP for this special award. When Bill contacted me this summer to say that I had been selected I must admit that I was totally surprised and thoroughly delighted. I had not considered that this honor would ever come to me so it was doubly pleasing. In addition, I am joining distinguished company including Stan Schultz and Aubrey Taylor who are here at this meeting.

Bill referred to our experience here at the University of Arizona in developing a new department of physiology in a new medical school. Starting a new physiology department required the dedicated effort of many people. I am grateful to the students, post-docs, technicians, and collaborators who came here and contributed so importantly to our research program. Teaching and administration depended on faculty and staff who joined us. Doug Stuart, Bill Dantzler, and Bob Gore joined us during the first year of our new department's existence and Raphael Gruener and George Hedge came at the end of the first year. All these folks were willing to

take a chance on a new department in a new medical school with limited resources but the promise of an open-ended opportunity and a lot of hard work. It is a standing joke among us that if we had been less naïve about the challenges we would face in starting a new department, we probably would not have come. Other faculty came later to make us much stronger and diversified in our capabilities. I was also most appreciative of the excellent administrative staff we enjoyed in our department while I was here. Two of them are here tonight, Lela Aldrich and Lura Hanekamp, and I want to recognize them at this time. I also want to introduce my wife Genevieve and my daughter Ciri, who lives here in Tucson. Our sons Philip and Christopher grew up here also but now live in San Jose, California and in Austin, Texas, respectively. I was blessed with dedication and support of family throughout my academic career.

It is significant and timely that I should receive this award at this particular time. It was in fact 50 years ago this spring that I first became acquainted with physiology. Physiology was very different then from what it is today. At that time the smoked drum kymograph, which had been invented a century earlier, was still the standard means of recording events in cardiovascular, respiratory, and muscle physiology. The oscilloscope was used in neurophysiology but high-gain amplifiers were difficult and not very reliable. Chemical analyses were not sophisticated by today's standards. Our views of all areas of physiology were dramatically different from what they are today. In the area of neurophysiology an argument was raging as to whether synaptic transmission in the central nervous system was mediated chemically or electrically. In the area of the peripheral circulation, blood flow regulation was thought to be almost entirely through reflex mechanisms; the possibility of local regulation was covered in a few

sentences in textbooks, if at all. Research funding was meager and was supported mostly by departmental funds or private foundations. On the other hand, and perhaps of interest to this group, such funds as were available were usually controlled by the department chair. Department chairs did not face a highly complex higher administration. The Deanship of the University of Michigan medical school for example, was a part-time job. But that along with many other things was changing. One which would forever change the face of physiology was that the NIH and the NSF had been established and to my good fortune, as it turned out, the first grants had been awarded.

My acquaintance with physiology began not in the usual way of taking a course in the subject. In fact in the spring of 1950 I was a physics major at the University of Michigan and I was somewhat desperately looking for a part-time job to allow me to stay in school. I had no luck in the usual places, grocery stores and the like, and by chance I heard that there was a student employment office on campus. Having recently transferred from the community college in my home town in northern Michigan, I was not acquainted with it. The woman who interviewed me said there was a part-time position available for a student in a research lab in the medical school but she doubted that I would qualify since she noted from my transcript that I had never taken a course in biology; which was certainly true. In fact I had studiously avoided biology and had told my friends that there were two things I was not interested in, one was biology, the other, interestingly, was teaching.

Since I was desperate for a job she took pity and sent me to Dr. John Bean in the Physiology Department. He had just obtained an NIH grant to study oxygen toxicity and was looking for part-time help. It must have been one of the very earliest NIH grants awarded. It was my good fortune that he did not have a

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problem with my lack of biology and apparently thought the physics background would be a plus. So I was very fortunate to get the job which allowed me to stay in school and, perhaps even more importantly, exposed me to physiology. I found that I liked physiology even more than physics so when Bean suggested I apply to the graduate program in the department I jumped at the chance. While I did not know a lot about graduate training, I was having a great time in his research lab. Bean's willingness to take me into the lab illustrates what I think, and admittedly I am biased on this point, is one of the strengths of our discipline and that is its ability to accept people with diverse backgrounds into the field. Granted, biology is the cornerstone but I think that physiology has benefitted from having a healthy mix of people with primary training in other disciplines. I recall a quote from Claude Bernard to the effect that "physiology is the application of physics, chemistry and mathematics to the understanding of biological function." This open-ended approach has made physiology a melting pot, somewhat like our own country is a melting pot. At times of course being in a melting pot can be a bit unsettling and here in the Southwest and California in particular there have been significant tensions in our society because of it. In recent years we have also seen tensions in physiology as we are pulled in different directions and especially challenged by the rapid development of and emphasis on molecular biology.

You are in a better position than I to judge how physiology is standing up to this challenge but I find it fascinating that with the mapping of the human genome nearing completion we are beginning to take the first steps in understanding the relation of genes to function. In this realm it appears that physiology and physiologists can have an important role to play. But it is a very different world from the one we have

been accustomed to and we need to familiarize ourselves with new techniques and concepts. Since physiology has been a melting pot in the past I am optimistic that can continue to be such in the future and our field will benefit by it.

I have been impressed over the years with the contributions that the Association of Chairs of Departments of Physiology has made to keeping physiology a leader in the biomedical realm. For most of the time that I was a member of this group our meetings were limited to one evening at FASEB. But the world is increasingly complex and from your program it is evident that you are doing much more to keep department heads around the country well-informed on the key issues than we did some years ago. The APS has taken on greater responsibility also in keeping our members up to date in teaching and research. The two organizations are complementary and I see that Marty Frank is here to keep a good liaison going.

I would like to conclude with a few thoughts about what it means to be a physiology department chair. Whatever you might have imagined it to be, when you become one the reality is a bit different. I recall that after I had been a chair for a few years I received a call from Aubrey Taylor, who was then at the University of Mississippi in Arthur Guyton's department and had been offered the chair at the University of South Alabama. We know what an outstanding job Aubrey has done there but at that time he was trying to decide whether or not to take the job. He asked me what it was like and what to expect as a department chair. Well, my experience had been quite positive but I did not want to appear too enthusiastic lest I give the wrong impression that it is all roses. So after discussing the pros and cons I concluded with a quote from Mark Twain; "there are things about lifting a cat by the tail that you can only learn by lifting a cat by the tail." I

thought that put it about as well as I could but years later Aubrey recalled that telephone conversation in his Landis Award lecture to the Microcirculatory Society. There must have been a momentary poor telephone connection because the way Aubrey tells it, I told him that he "should always lift the cat by the tail." So I apologize to Aubrey. I can only imagine the grief that this misunderstanding must have caused him.

I had a very good role model of a department chair in Ewald Selkurt while I was in his department at Indiana University. Ewald was a good advocate for the teaching program and for the faculty to the administration. In turn he had to tell the faculty what the administration expected of them. Because he was a straight shooter he was always greatly respected by faculty and administration and the students.

What exactly is a department chair? When you are recruited for the job your research is looked at closely. Every school wants a department head who has strong research credentials and commands immediate respect in the academic community. Commitment to a strong teaching program is also a priority to a varying degree. But I recall a meeting of the ACDP with the dean at a highly ranked medical school who said quite frankly that they "recruited department chairs on the basis of their research and hoped they could teach." That attitude hasn't appeared to dampen student's desire to be accepted at that school but at most medical schools teaching is recognized as a high priority these days.

The department chair sets the tone for many aspects of departmental life, including the level of commitment to teaching, to research, and to involvement in the academic life of the university. Many problems can be avoided if the chair and faculty have a common philosophy, especially in respect to teaching and research. My own bias is that both are equally important and all

ACDP Distinguished Service Award

members of the faculty should strive for excellence in both teaching and research. Another aspect of the department chair's role that I found to be particularly important is helping young faculty to establish their teaching and research programs. Our institution did not have the resources to hire senior faculty but we were fortunate in being able to attract promising young faculty. It was a special pleasure to see these young faculty grow into mature and accomplished teachers and researchers with programs of recognized excellence and with leadership responsibilities in the discipline.

As the spokesperson for the department you have to make the case year by year for the department's share of resources for staff support, equipment money if there is such, and of course, the overriding concern for lab and office space. For many faculty the amount of lab space they control appears to be just about the most significant measure of their importance and as a department chair you have to deal with that attitude. If you head a department with highly productive researchers you may not get rewards in terms of additional space and resources because the administration is more concerned about the weak departments and what can be done to strengthen them than it is about rewarding strong departments. Often this is a very serious problem for an administration

that wanted a very productive researcher as department head but does not have or is willing to provide the resources to allow that department to develop its full potential.

In our department here at Arizona we were very fortunate to have highly productive individuals so I had a strong case to make to our Dean. Unfortunately at our institution, and at many other new medical schools, space is in chronically, and, in fact, desperately, short supply. How to convince the administration that successful departments need to be well-nourished is a common problem and maybe some of you have found a solution. If you have, I am sure many of your colleagues here would appreciate knowing about it.

Another area in which department chairs and the administration may not see eye to eye is the chairperson's role as spokesperson for the faculty and academic values. Department chairs who are too outspoken in support of faculty views on academic issues regarding curriculum or academic freedom, for example, may find that they are not looked at sympathetically when they ask for needed resources. This should not deter us but the department may pay a penalty in some schools for that independence of thought.

On the other hand the physiology chair in a medical school has a great deal of authority, unlike chairs in some

main campus departments who may have little authority and find it a thankless job. The Physiology chair is not simply an administrator but is the spokesperson for the discipline and usually the most visible representative of our field in the institution. And as an academic leader who enjoys the respect of colleagues in the university and among peers in their field they cannot be ignored. A wise dean or president recognizes that the university is only as strong as the faculty and to a very large degree in turn only as strong as its department chairs.

In the broader perspective, let us remember that medical faculties in this country and abroad have played a leading role in the revolution in the science and practice of medicine that has taken place in the past 50 years. Considering the contributions that physiology has made to these advances all of you in this organization can take great pride in helping to bring this about.

In closing let me again express my deepest appreciation for this invitation to attend your meeting and receive this very high honor. It has been a very special experience for me to attend an ACDP meeting again and learn about current issues and activities.

Thank you very much and I wish you well. ❖

The American Physiological Society is pleased to invite the membership to consider including the APS in their gift giving plans. Over the last several years, the Society has received donations of land and securities, all of which have been used to launch the Society's various young investigator award programs.

Many options exist if you are interested in including the APS and its Endowment Fund in your financial or estate planning. Some options include:

- ❖ **Immediate Gifts:** Cash, gifts of appreciated securities, gifts of closely

Gift Planning Opportunities

held stock, gifts of tangible personal property, retirement assets, charitable lead trusts and gifts of real estate.

- ❖ **Life Income Gifts:** Gift annuities, deferred payment gift annuities, charitable remainder trusts, charitable remainder unitrusts, and charitable annuity trusts.

- ❖ **Gifts of Insurance:** Ownership of life insurance policies can be donated, or the APS can become the beneficiary of policies owned by others.

- ❖ **Designated Gifts:** Gifts given to honor or memorialize an individual or an organization and can include schol-

arships, programs, etc., which are specified for support and named for individuals.

- ❖ **Gifts by Will:** Bequests of a percentage of estate, stated dollar amount or specific property or assets.

For more information on gift giving to the APS, please contact Martin Frank, Executive Director (Tel. 301-530-7118, Email: mfrank@aps.faseb.org), or Robert Price, Director of Finance (Tel. 301-530-7160, Email: rprice@aps.faseb.org).

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PHYSIOLOGY IN PERSPECTIVE:
THE WALTER B. CANNON
AWARD LECTURE (SUPPORTED
BY THE GRASS FOUNDATION)

Robert J. Lefkowitz
Duke University

*"Regulation of G Protein-
Coupled Receptors: Molec-
ular Mechanisms, Physio-
logical Implications and
Therapeutic Opportunities*

SATURDAY, MARCH 31, 5:30 PM
Peabody, Ballroom D



HENRY PICKERING BOWDITCH
AWARD LECTURE

Peter M. T. Deen
University of Nijmegen,
The Netherlands

*"The Aquaporin-2 Water
Channel in Health and
Disease"*

SUNDAY, APRIL 1, 5:30 PM

Peabody, Ballroom D

Distinguished Lectureships



JOSEPH ERLANGER DISTINGUISHED
LECTURESHP
OF THE CENTRAL NERVOUS
SYSTEM SECTION

Gerald D. Fischbach
Columbia University

*"Plasticity at Peripheral and
Central Synapses"*

SUNDAY, APRIL 1, 9:00 AM

Convention Center, Room 312 B/C



CARL LUDWIG
DISTINGUISHED LECTURESHP OF
THE NEURAL CONTROL AND
AUTONOMIC REGULATION
SECTION

William C. de Groat
University of Pittsburgh

*"Plasticity in Sacral Autonomic
Reflex Pathways During Postnatal
Development and After Neural
Injury"*

SUNDAY, APRIL 1, 2:00 PM

Convention Center, Room 311 C/D



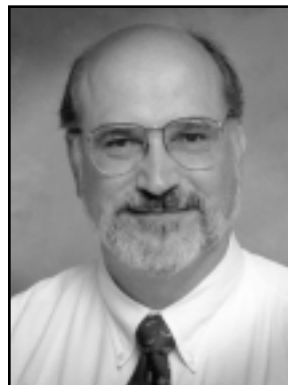
CLAUDE BERNARD
DISTINGUISHED LECTURESHP OF
THE TEACHING OF PHYSIOLOGY
SECTION

Joel A. Michael
Rush Medical College

*"In Pursuit of Meaningful
Learning"*

SUNDAY, APRIL 1, 3:15 PM

Convention Center, Room 311 F



ROBERT M. BERNE
DISTINGUISHED LECTURESHP
OF THE CARDIOVASCULAR
SECTION

William M. Chilian
Medical College of Wisconsin

*"Adaptations of the Coronary
Circulation to Ischemia—From
Chaos to Collaterals"*

MONDAY, APRIL 2, 8:00 AM

Convention Center, Room 312 B/C



HUGH DAVSON
DISTINGUISHED LECTURESHP OF
THE CELL AND MOLECULAR
PHYSIOLOGY SECTION

Carolyn W. Slayman
Yale University

*"Structure, Function, and
Biogenesis of a Model Cation
Pump"*

MONDAY, APRIL 2, 10:15 AM

Convention Center, Room 311 C/D



ERNEST H. STARLING
DISTINGUISHED LECTURESHP
OF THE WATER AND ELECTROLYTE
HOMEOSTASIS SECTION

Richard J. Roman
Medical College of Wisconsin

*"P450 Eicosanoids in the
Control of Renal Function,
Vascular Tone and Arterial
Pressure"*

MONDAY, APRIL 2, 2:00 PM

Convention Center, Room 311 G/H

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SOLOMON A. BERSON
DISTINGUISHED LECTURESHIP
OF THE ENDOCRINOLOGY AND
METABOLISM SECTION

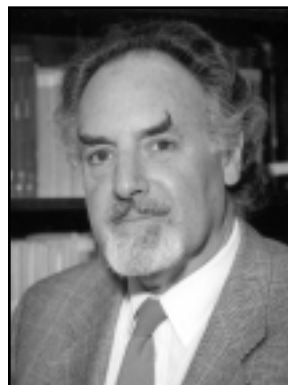
Frank Talamantes

University of California-
Santa Cruz

*"Structure and Regulation of
Expression of the Growth
Hormone Receptor and Binding
Protein"*

MONDAY, APRIL 2, 2:00 PM

Peabody, Orlando II



HORACE W. DAVENPORT
DISTINGUISHED LECTURESHIP OF
THE GASTROINTESTINAL
SECTION

Geoff Burnstock

University College, London

*"Purinergic Signalling in the
Gut"*

MONDAY, APRIL 2, 3:15 PM

Convention Center, Room 311 F



EDWARD F. ADOLPH
DISTINGUISHED LECTURESHIP
OF THE ENVIRONMENTAL
AND EXERCISE PHYSIOLOGY
SECTION

George A. Brooks

University of California-
Berkeley

*"The Lactate Shuttle: New
Interpretation of Old Ideas"*

TUESDAY, APRIL 3, 8:00 AM

Peabody, Ballroom E



JULIUS H. COMROE, JR.
DISTINGUISHED LECTURESHIP
OF THE RESPIRATION SECTION

John E. Remmers

University of Calgary

*"Breathing and Sleeping: A
Physiological Conundrum for
Humans"*

TUESDAY, APRIL 3, 10:15 AM

Convention Center, Room 311 F



AUGUST KROGH
DISTINGUISHED LECTURESHIP OF
THE COMPARATIVE
PHYSIOLOGY SECTION

Peter W. Hochachka

University of British Columbia

*"Conservation and Adaptation
in Evolution of Human Hypoxia
Response Physiology"*

TUESDAY, APRIL 3, 2:00 PM

Peabody, Orlando III



CARL W. GOTTSCHALK
DISTINGUISHED LECTURESHIP OF
THE RENAL SECTION

James A. Schafer

University of Alabama-
Birmingham

*"Abnormal Regulation of EnaC in
the Collecting Duct—Syndromes
of Salt Wasting and Retention"*

TUESDAY, APRIL 3, 3:15 PM

Convention Center, Room 312 B/C

Third Annual Walter C. Randall Lecture in Biomedical Ethics

*Scientific Professionalism:
Possessors or Pursuers of Truth?*

Nancy Jones, Wake Forest University

TUESDAY, APRIL 3, 2:00 PM

Convention Center,
Room 311 G/H



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Saturday, March 31, 2001

Peabody Ballroom D	5:30-6:30 PM Physiology in Perspective The Walter B. Cannon Memorial Award Lecture Lefkowitz	9 PM-12 AM APS Mixer	
Peabody Ballroom E	10:00 AM-12:00 NOON Workshop: Integrative Approaches for the Study of Physiological Function in Genetically Altered Mice Lorenz/Mattson	1:00-5:00 PM Tutorial: Experimental Gene Delivery and Therapy Gelband/Sigmund	
Peabody Ballroom F/G/H	8:00 am-12:00 NOON Refresher Course in Endocrinology: Endocrinology in Modern Medical Curricula Vari/Lechner		
Conv Ctr 204 C	1:00-3:00 PM APS/AAA Joint Symposium: Chronic Bowel Inflammation and Allergic Asthma: Similarities and Differences Plopper/Raybould		
Conv Ctr Rm 312 B/C	10:00 am-12:00 NOON MCS Workshop: Clinical Applications of Intravital Microscopy Klitzman/Harris	1:00-3:00 PM MCS Young Investigator Session Kanwar	3:15-5:15 PM MCS President's Symposium: Signaling Mechanisms of Endothelial Nitric Oxide Synthase Durán
Conv Ctr Rm 311 G/H	3:00-5:30 PM Public Affairs Workshop A Call to Activism: Communicating About Science Talman		
Conv Ctr Rm 311 E	2:00-4:00 PM Russian and Eastern-Block Physiologists: Recognition Because of Pre-World War II and Cold War Conditions Tipton/Folk		
Conv Ctr Rm 313	1:00-5:00 PM Education Committee Refresher Course: Endocrine Case Studies (limited attendance) Vari/Lechner		

Microcirculatory Society Poster Sessions

Friday, March 30
1:00-4:00 PM

Saturday, March 31
8:00 AM-12:00 NOON

Microvascular cell interactions
Cell and molecular biology
Ischemia/reperfusion
Flow regulation; oxygen delivery
Clinical microcirculation
Instrumentation
Microvascular networks
Microvascular mechanics and hemodynamics

Microvessel permeability/exchange
Microvascular pharmacology/vascular control
Angiogenesis/microvascular remodeling

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Sunday, April 1, 2001

	8:00-10:00	10:15-12:15	2:00-3:00	3:15-5:15
Peabody Ballroom D				5:30-6:30 PM Henry Pickering Bowditch Award Lecture Deen
Peabody Ballroom E			2:00-5:15 PM FT: Muscle Fatigue Ameredes	6:00-8:00 PM Graduate Student Highlights in Respiration Physiology
Peabody Orlando III	FT: Physiological Genomics: Gene Profiling Regulation and Analysis Gelband/Jacob	FT: Physiological Genomics: Gene Transfer and Knockout Models Sigmund/Raizada		Symposium Protein-protein Interactions in Signal Transduction Weinman/Shenolikar
Peabody Orlando II	Tutorial: Tissue Engineering: Opportunities and Challenges Nerem	Workshop: Collaborating With Industry: The Rules of the Game Reinhart		FT: Heat Shock Protein: Environmental and Exercise Stress Moseley
Peabody Orlando I	ASPET/APS Workshop: How to Get Published in ASPET and APS Journals Barrett	Workshop: Peer Review and Publication of APS Journals Benos	1:30-2:30 PM Workshop: NIH Programs and Policies: FY2001 and Beyond Geller	AFMR Symposium: Lipid Mediators of Angiogenesis English
Conv Ctr Rm 312 B/C	9:00-10:00 AM Joseph Erlanger Distinguished Lectureship Fischbach	Physiology InFocus: Neurotransmitters and Cardiovascular Regulation: Angiotensin Dampney	MCS: E.M. Landis Award Lecture Heistad	Physiology InFocus: Neurotransmitters and Cardiovascular Regulation: Glutamate Gordon
Conv Ctr Rm 311 C/D	FT: The Emerging Neurobiology of Obesity: Autonomic and Cardiovascular Implications Mark	Symposium: Programming of the Fetus <i>in utero</i> : Impact on Physiology in Adulthood Albrecht	Carl Ludwig Distinguished Lectureship de Groot	Symposium: Tight Junctions: Convergence of Molecular and Physiologic Insights Anderson
Conv Ctr Rm 312 A		FT: The Evolution and Modification of the Hypercapnic Ventilatory Response Milsom/Perry		FT: Fuel Metabolism Wasserman
Conv Ctr Rm 311 G/H	Symposium: Interplay Between Nitric Oxide and Hemoglobin: Current Concepts Patel/Grisham	FT: Regulation of Vascular Tone by Oxygen: Many Mechanisms—Few Answers Jackson		SECF Symposium: Engineering Islet Cells for Cell Therapy of Diabetes Mellitus Soria/Newgard
Conv Ctr Rm 311 F	FT: Perspective on Problem-Based Learning: Thorns and Roses Rangachari/Haramati	Symposium: Matching Technology to Education: How to Choose the Right Technology to Meet Your Educational Needs Cleland/Michael		Claude Bernard Distinguished Lectureship Michael
Conv Ctr Rm 311 E	ALACF Symposium: Nutritional neuroscience Lima/Cintra	FT: Cell Signaling in Airway Smooth Muscle Gunst/Jones		FT: Ion Channel Remodeling in CV Disease: Pathogenesis and Therapeutic Implications Rusch/Gelband
Conv Ctr Rm 313	Symposium: Renal and Comparative Physiology of Urea Transporters Sands/Knepper	FT: Physiology of Urea Transporters Gunn/Sands		FT: Cellular Response to Mechanical Stress Hubmayr/Fredberg

FT: Featured Topic

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Monday, April 2, 2001

	8:00-10:00	10:15-12:15	2:00-3:00	3:15-5:15
Peabody Ballroom D	BMES Symposium: Mechanical Modulation of Gene Expression in the Musculoskeletal System: From Nucleus to Organism Rubin	Symposium: Metabolic Complications in HIV/AIDS Yarasheski		A. Clifford Barger Memorial Symposium: Gene Therapy for Cardiovascular Disease Dzau/Berecek
Peabody Orlando III	SEBM Symposium: Physiology, Pathophysiology, and Genetics of Body Weight/Adiposity Regulation Havel/Horwitz	Symposium: Genetic Modification of Calcium-Handling Proteins in Heart Disease: Insights, Roadblocks and Potential Therapies Metzger		5:30-7:30 PM Careers in Physiology Symposium: Opportunities in Industry Belloni
Peabody Orlando II	AFMR Symposium: Type 1 Diabetes Etiology, Prevention and Cure Furlanetto	Symposium: Intermittent Hypoxia: Cell to System Prabhakar/Fletcher	Solomon A. Berson Distinguished Lectureship Talamantes	FT: Protein and Amino Acid Metabolism Vary
Peabody Orlando I	9:00 AM-12:00 NOON Education Committee: Life Science Students and Teachers Workshop			Symposium: Myosin Isoforms and Smooth Muscle Function: New Technology, New Questions Brozovich/Paul
Conv Ctr Rm 312 B/C	Robert M. Berne Distinguished Lectureship Chilian	Physiology InFocus: Neurotransmitters and Cardiovascular Regulation: Nitric Oxide Bredt		Physiology InFocus: Neurotransmitters and Cardiovascular Regulation: GABA Sved
Conv Ctr Rm 311 C/D	Symposium: How Does the Brain Understand Muscle Mechanics? Nichols/Houk	Hugh Davson Distinguished Lectureship Slayman		Symposium: Model Organisms: Functional Genomics of Membrane Transport Strange
Conv Ctr Rm 312 A	FT: Molecular Mechanisms of HCO ₃ ⁻ Transport Romero/Quinton	FT: Adaptations of the Coronary Circulation to Ischemia Chilian/Schulz		FT: Electroneutral Ion Transport in the Central Nervous System Payne
Conv Ctr Rm 311 G/H	FT: Kernal of Breathing: The Pre-Bötzinger Complex Feldman/Neubauer	Symposium: Physiological Genomics: Activity-sensitive Gene Regulation in Muscle Hood	Ernest H. Starling Distinguished Lectureship Roman	Symposium: Effect of Changes in Blood Pressure on Renal Transporters McDonough
Conv Ctr Rm 311 F	FT: Regulation of Renal Blood Flow and Blood Pressure Garvin	FT: Role of the Endothelial Factors in Hypertension Fink/Pollock	1:00-3:00 PM Education Committee: Life Science Students Workshop	Horace W. Davenport Distinguished Lectureship Burnstock
Conv Ctr Rm 311 E	Symposium: Lung Surfactant and Reactive Oxygen/Nitrogen Species: Antimicrobial Activity and Host/Pathogen Interactions Within the Lung Hickman/Davis	Symposium: Life, Sex and Death: The Physiological Basis of Life-history Traits and Trade-offs Williams/Sinervo	1:00-3:00 PM Education Committee: Life Science Teachers Workshop	FT: Plasticity and Repair of the Phrenic Motor System Following Cervical Spinal Injury: Current Concepts Bolser/Mitchell
Conv Ctr Rm 313	Symposium: Vagal Mechanisms of Visceral Sensation: Emerging Concepts Blatteis/Raybould	FT: Ion Transport in Gametes and Reproductive Epithelia Wong/Breton		FT: Mechanisms and Modifications of Alveolar Epithelial Fluid Transport in the Mammalian Lung Matthay

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Tuesday, April 3, 2001

	8:00-10:00	10:15-12:15	2:00-3:00	3:15-5:15
Peabody Ballroom D	BMES Symposium: DNA Microarray in Bioengineering and Physiology Chien	BMES Symposium: Bioinformatics in Biology and Engineering Subramaniam/Bassingthwaight		Symposium: Neurohumoral Control of the Normal and Diseased Heart Ardell 5:30-7:00 PM APS Business Meeting
Peabody Ballroom E	Edward F. Adolph Distinguished Lectureship Brooks			
Peabody Orlando III			August Krogh Distinguished Lectureship Hochachka	Symposium: Combined Impact of Temperature and Exercise Stress on the Physiological Response to Toxic Agents Gordon/Steinberg
Peabody Orlando II	Symposium: Adaptive Regulation of Epithelial Solute Transporters Hirst/Ferraris	Symposium: Structure and Gating of Epithelial Ion Proteins Kleyman		AFMR Symposium: New Insights Into GI and Liver Diseases Based on Molecular Aspects of Transport Physiology Barrett/Moseley
Peabody Orlando I	FT: Developmental Regulation of Oxygen Sensing Kumar	FT: Wiggers Award: Novel Mechanisms of Cardiovascular Control by Nitric Oxide Kaley		FT: Cell Stress and Protein Kinases: Integrated Signalling in vivo Storey
Conv Ctr Rm 312 B/C	Symposium: The Early Impact of Diabetic Hyperglycemia on Renal and CV Function Brands/Carmines			Carl W. Gottschalk Distinguished Lectureship Schafer
Conv Ctr Rm 311 C/D	FT: Cell Signaling in the Lung Bhattacharya/Raj	Symposium: The Role of Cell Membrane in Regulating Excitability and Contractility During Exercise and Fatigue Renaud/Nosek		Symposium: Vasopressin: Integrative and Cellular Mechanisms of Release and Actions Cunningham/Sladek
Conv Ctr Rm 312 A	FT: Cellular Mechanisms of Regulated Secretion (in the GI Tract) Chew/Forte	FT: Neural and Endocrine Regulation of Blood Volume and Arterial Pressure Persson/Ehmke		FT: Somatic Sensation During Movement and its Role in Autonomic Control Yates
Conv Ctr Rm 311 G/H	Symposium: Potassium Channels that Regulate Vascular Tone: Which are the Major Players? Gutterman/Hume	FT: Nitric Oxide: Skeletal Muscle Function and Blood Flow Reid/Delp	Walter C. Randall Lecture in Biomedical Ethics: Jones	FT: Understanding the Role of the Angiotensin System Through the Actions of Angiotensin (1-7) Ferrario/Brosnihan
Conv Ctr Rm 311 F		10:15-11:15 Julius H. Comroe Jr. Distinguished Lectureship and FT Remmers		FT: Mechanisms of Muscle Injury in Sepsis Supinski
Conv Ctr Rm 311 E	FT: Role of the Endothelium in GI Inflammation Kvietys/Alexander	Symposium: The Role of the Amygdala in the Physiology of Emotion Adolphs/Talman		SECF Symp: Neuronal Mechanisms Underlying Associative Learning Delgado/García
Conv Ctr Rm 313	FT: Neural Control of Renal Function Malpas	FT: Hypertonicity and Stress: New Sites of Recognition Kwon		Symposium: Respiratory Physiology of the Pharyngeal Airway: Modulation by Skeletal Muscle Activities, CNS State and Disease Fregosi/Kuna

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Wednesday, April 4, 2001

	8:00-10:00	10:15-12:15	2:00-3:00	3:15-5:15
Peabody Orlando III	8:00 AM-5:15 PM Genomics and Molecular Basis of Exercise and Environmental Physiology Session 1: Molecular Basis of Human Performance Session 2: Molecular Response to Hypoxia Session 3: Molecular Control of Thermogenesis		Bouchard Sonna Neufer	
Peabody Orlando I	Physiological Genomics of the Respiratory System Tankersley			
Conv Ctr Rm 312 B/C	Symposium: Membrane Fusion Brown	FT: Liver Pathophysiology Benoit/Lentsch		
Conv Ctr Rm 311 C/D	FT: EDHF: Chemical Nature and Sites of Action Campbell/Garland	FT: What is the Role of Mast Cells in Cardiovascular Disease? Janicki/Brower		
Conv Ctr Rm 312 A	FT: Autonomic and Cardiovascular Regulation: Focus on Nociceptin and Opioid Peptides Kapusta	FT: Spinal Cord Injury: Degeneration, Plasticity, Repair and Therapy Weaver	FT: Sex and the Brain (Hormonal Regulation of Neuronal Function) Clark	
Conv Ctr Rm 311 G/H	ALACF Symposium: Calcium Regulation for Muscle Contraction Caputo/Ferriera			
Conv Ctr Rm 311 F	FT: Role of Oxidative Stress in Hypertension Reckelhoff/Alonso-Galicia	FT: Calcium Sensing Receptors Breitweiser		
Conv Ctr Rm 311 E	Symposium: Mitochondria and Energy Metabolism in Heart Failure, Hypertrophy, and Remodeling Portman	Symposium: Endothelial Cellular Response to Altered Shear Stress Fisher		
Conv Ctr Rm 313	AFMR Symposium: The Role of Mediators of Innate Immunity in the Inflammation Associated with Trauma Nicholson-Weller	Regulation of Renal Tubular Ion Transporters Boron		

FASEB 2001 Summer Research Conferences Announced

The 2001 FASEB Summer Research Conferences will be held in Saxtons River, VT, Tucson, AZ, Snowmass Village, CO, and Whitefish, MT.

The schedule for the Conferences has been posted on the FASEB web site at <http://www.faseb.org/meetings/src>. The

preliminary programs and an application and abstract form that can be submitted electronically, will be posted in February.

For more information, contact gswindle@faseb.org.

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Poster Sessions (12:30 PM -3:00 PM)

Sunday, April 1

Connective tissue and bone metabolism
Mammary gland and lactation
Gestational, fetal and neonatal biology
Growth, reproduction and sex hormones
Thyroid
Hypothalamus, pituitary and adrenal
Neuroendocrinology and Immunoendocrinology
Obesity and satiety
The emerging biology of obesity: autonomic and cardiovascular implications
Cell growth, differentiation and apoptosis
Oxidative stress biology
Intracellular signaling and second messengers
Respiration and acid-base
Heart, blood and circulation
Muscle and locomotor adaptations
Physiological ecology and evolutionary physiology
Physiology in extreme environments
Heat stress and hyperthermia
Cold stress and hypothermia
Chronobiology/hibernation
Altitude and hypoxia
Physiological genomics: gene transfer and therapy
Physiological genomics: transgenic and knockout models
Regulation of vascular tone by oxygen:
many mechanisms-few answers
Ion channel remodeling in cardiovascular disease: pathogenesis and therapeutic implications
Endothelial cell biology I
Vascular smooth muscle I
Angiogenesis and vascular growth I
Microcirculation
Cerebral circulation
Neurotransmitters, growth factors and development of the central nervous system
Neurohumoral mechanisms of hypertension
Regulation of water and electrolyte homeostasis
Renin-angiotensin system in volume pressure regulation
Water channels
Tight junctions and gap junctions in epithelia
Polarity of epithelial cell membranes: trafficking
Epithelial imaging
Regulation of ion transport systems in the kidney
Regulation of renal hemodynamics and glomerular function
Control of breathing: chemoreception
The evolution and modification of the hypercapnic ventilatory response
Hypoxia
Regulation of gene transcription/physiological genomics
Cellular response to mechanical stress
Intracellular signaling in the lung
Lung growth and development

Monday, April 2

Teaching of Physiology
Scholander Award Session
Osmotic and ionic regulation
Temperature adaptation and energetics
Comparative endocrinology
Exercise I: metabolic/fitness tests
Heat shock protein
Environmental
Muscle plasticity (cellular/molecular)
Control of breathing: modulation, plasticity and genetic influences
Control of breathing: CNS mechanisms
Motor control/inhibitory neurotransmission
Ion channels and ion channel diseases
ENaC, epithelial Na channels
Cotransport and exchange transport
Transporters: ions, nutrients, metabolites and drugs
Epithelial transport of calcium, magnesium, iron
Epithelial transport of phosphate, sulfate and other multivalent anions
Ion transport in gametes and reproductive epithelia
Electroneutral ion transport in the central nervous system
Cell volume, osmoregulation and water transport
ATPase ion pumps
Active transport pumps in epithelia
Intracellular pH and acid-base transport
Hormones and renal function in health and disease
Endothelial cell biology II
Vascular smooth muscle II
Angiogenesis and vascular growth II
Adaptations of the heart to ischemia
Hypertension and diabetes
Neural control of cardiovascular function I
Neural control of cardiovascular function II
Gene expression and cardiovascular function
Genetic models of cardiovascular function
Physiological genomics: bioinformatics, microarrays and proteomics
Physiological genomics: genetic models and genetic mapping
Smooth muscle physiology
Cardiac muscle physiology
Endothelial cells
Lung fluid balance
Lung surfactant
Cytokines and lung injury
History of physiology
Cellular mechanisms of regulated secretion in the GI tract
Molecular mechanisms of HOC₃ transport

Experimental Biology 2001

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Poster Sessions (12:30 PM -3:00 PM)

Tuesday, April 3

Lipid metabolism
Carbohydrate metabolism
Insulin secretion and action
Growth hormone and IGF
Protein and amino acid metabolism
Physiological genomics: mechanisms of gene regulation
Coronary circulation
Myocardial ischemia
Nitric oxide and carbon monoxide
Blood pressure regulation
Understanding the role of the angiotensin system through the actions of angiotensin (1-7)
Novel mechanisms of cardiovascular control by nitric oxide
Role of oxidative stress in hypertension
Neural and endocrine regulation of blood volume and arterial pressure
Role of endothelial factors in hypertension
Exercise II: cardiorespiratory
Exercise training responses
Gravitational I: hypergravity
Control of breathing: airway receptors, reflexes and variability
Neural control of renal function
Neural control of cardiovascular function III
Brain and behavior
Skeletal muscle physiology
Developmental regulation of oxygen sensing
Cell stress and protein kinases: integrated signaling in vivo
Biomedical engineering
Pancreas and liver
GI pathophysiology
Liver pathophysiology
GI response to environment
Molecular biology of the GI tract
GI motility
GI peptides, hormones and growth factors
Electrolyte transport, absorption and secretion
Role of endothelium in GI inflammation
Hormones in the regulation of renal function
Renal pathology and toxicology
Molecular biology and structure of epithelial transporters and channels
Epithelial transport
Regulation of epithelial transport
Ion channels
Epithelial Cl channels
CFTR, the cystic fibrosis transmembrane
Protein-protein and protein-lipid interactions in epithelia
Renal water transport, urea transport and the concentrating mechanism
Physiology of urea transporters
Renal organic solute transport
Pulmonary vasoregulation/pulmonary artery hypertension
Alveolar and airway epithelial barrier and transport properties
Lung ventilation/gas exchange/airway reactivity

Wednesday, April 4

Fever
Thermoregulatory responses to non-thermal stressors
Nitric oxide
Gravitational II: microgravity
Calcium sensing receptors
Intracellular calcium and calcium signaling
Cytoskeleton, cell mechanics and intracellular trafficking
What is the role of mast cells in cardiovascular disease
EDHF: chemical nature and sites of action
Peripheral circulation
Shock
Vasoactive molecules
Vascular pathobiology
Oxidized lipids/oxidant stress
Free radical injury
Cardiac electrophysiology
Cardiac function and dynamics
Myocardial metabolism
Autonomic and cardiovascular regulation: focus on nociceptin and opioid peptides
Neural control of cardiovascular function IV
Neural control of cardiovascular function V
Neural control of cardiovascular function VI
Spinal cord injury
Gender differences in neural control
Gender differences in body fluid and cardiovascular regulation

**Come Meet Your
Colleagues in Industry!**

**Industry Members Mixer
Monday April 2, 5:30 pm
Peabody Hotel, Coconuts Room**

**Sponsored by the
Liaison With Industry Committee**

Experimental Biology 2001

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Cardiovascular

Section Program Committee

Friday, March 30, 1:00 PM
Peabody, Butler Room

NIH Liaison Committee

Friday, March 30, 5:00 PM
Peabody, Butler Room

Nominations Committee

Saturday, March 31, 7:00 AM
Peabody, Challenger Room

Industry Liaison Committee

Sunday, April 1, 7:00 AM
Peabody, Sweetwater Room

Steering Committee

Monday, April 2, 12:00 PM
Peabody, Butler

Cell and Molecular

Steering Committee

Friday, March 30, 11:00 AM
Peabody, Fairview Room

Banquet and Lecture

Monday, April 2, 6:30 PM
Ming Court Wok and Grille

Central Nervous System

Section Program Committee

Friday, March 30, 1:00 PM
Peabody, Fairview Room

Steering Committee

Monday, April 2, 12:00 PM
Peabody, Challenger Room

Reception

Monday, April 2, 6:30 PM
Peabody, Challenger Room

Comparative

Steering Committee

Sunday, April 1, 12:00 PM
Peabody, Butler Room

Business Meeting, Social, Scholander

Tuesday, April 3, 11:30 AM
Rosen Plaza Hotel, Salon 4

Endocrinology and Metabolism

Steering Committee

Sunday, April 1, 12:00 PM
Peabody, Challenger Room

Sections Special Functions

Environmental and Exercise

Physiology

Section Program Committee

Friday, March 30, 2:00 PM
Peabody, Bayhill II

Steering Committee

Monday, April 2, 6:45 AM
Peabody, Discovery Room

Business Meeting

Monday, April 2, 5:30 PM
Peabody, Columbia Room

Dinner

Tuesday, April 3, 6:30 PM
Houlihan Restaurant

Epithelial Transport Group

Steering Committee

Monday, April 2, 12:00 PM
Peabody, Columbia

Gastrointestinal

Section Program Committee

Friday, March 30, 5:00 PM
Peabody, Challenger Room

Steering Committee

Tuesday, April 3, 7:00 AM
Peabody, Challenger Room

Business Meeting/Reception/Lecture

Tuesday, April 3, 6:00 PM
Peabody, Butler Room

History of Physiology Group

Business Meeting/Lecture

Sunday, April 1, 1:00 PM
Peabody, Orlando II

Neural Control and Autonomic

Regulation

Joint Steering/Section Program

Committees

Friday, March 30, 12:00 PM
Peabody, Conway Room

Reception for the Distinguished Lecturer

Monday, April 2, 6:30 PM
Peabody, Plaza Ballroom G

Parietal Cell Club

Monday, April 2, 5:00 PM
Peabody, Butler Room

Renal

Section Program Committee

Friday, March 30, 1:00 PM
Peabody, Challenger Room

Steering Committee

Sunday, April 1, 12:00 PM
Peabody, Fairview Room

Dinner

Tuesday, April 3, 6:30 PM
Wyndham Orlando Resort

Respiration

Section Program Committee

Monday, April 2, 7:00 AM
Peabody, Butler Room

Steering Committee

Tuesday, April 3, 7:00 AM
Peabody, Columbia Room

Business Meeting

Monday, April 2, 12:30 PM
Convention Center, Room 312A

Dinner

Monday, April 2, 6:30 PM
Rosen Plaza Hotel, Salons 11 & 12

Teaching of Physiology

Joint Steering/Section Program Committees

Friday, March 30, 1:00 PM
Peabody, Bayhill Suite IV/V

Business Meeting

Monday, April 2, 5:30 PM
Peabody, Discovery Room

Dinner

Monday, April 2, 7:00 PM
Location TBD

Water and Electrolyte Homeostasis

Joint Steering/Awards/Section Program Committees

Saturday, March 31, 4:00 PM
Peabody, Columbia Room

Luncheon and Business Meeting

Sunday, April 1, 11:30 AM
Monty's Conch Harbor Restaurant

Experimental Biology 2001

March 31-April 4, 2001 • Orlando, FL

Committee Meetings

Animal Care and Experimentation

Saturday, March 31, 7:30 AM
Peabody, Fairview Room

Awards

Sunday, April 1, 7:30 AM
Peabody, Columbia Room

Career Opportunities in Physiology

Monday, April 2, 7:30 AM
Peabody, Columbia Room

Committee on Committees

Saturday, March 31, 8:00 AM
Peabody, Columbia Room

Education

Sunday, April 1, 7:30 AM
Peabody, Discovery Room

International Physiology

Sunday, April 1, 12:00 PM
Peabody, Conway Room

Joint Program

Saturday, March 31, 8:00 AM
Peabody, Butler Room

Liaison With Industry

Sunday, April 1, 12:30 PM
Peabody, Columbia Room

Industry Members Mixer

Monday, April 2, 5:30 PM
Peabody, Coconuts Room

Long-Range Planning

Sunday, April 1, 12:00 PM
Peabody, Discovery Room

Membership

Sunday, April 1, 7:30 AM
Peabody, Butler Room

Porter Physiology Development

Monday, April 2, 7:30 AM
Peabody, Challenger Room

Public Affairs

Sunday, April 1, 7:30 AM
Peabody, Challenger Room

Section Advisory

Friday, March 30, 3:00 PM
Peabody, Conway Room

Joint With Council

Friday, March 30, 7:00 PM
Peabody, Challenger Room

Women in Physiology

Wednesday, April 4, 7:30 AM
Peabody, Winter Park Room

Publications Special Functions

Journal Editorial Boards Group Meeting

Saturday, March 31, 3:00 PM
Peabody, Orlando I

Advances in Physiology Education

Editor and Associate Editors
Wednesday, April 4, 7:30 AM
Peabody, Challenger Room

AJP: Cell Physiology

Editor and Associate Editors
Monday, April 2, 12:00 PM
Peabody, Discovery Room

AJP: Endocrinology and Metabolism

No meeting

AJP: Gastrointestinal and Liver Physiology

Editor and Associate Editors
Monday, April 2, 12:00 PM
Peabody, Conway Room

AJP: Heart and Circulatory Physiology

Editor and Associate Editors
Tuesday, April 3, 7:30 AM
Peabody, Butler Room

AJP: Lung Cellular and Molecular Physiology

Editor and Associate Editors
Sunday, April 1, 7:30 AM
Peabody, Fairview Room

AJP: Renal Physiology

Editor and Associate Editors
Tuesday, April 3, 12:00 PM
Peabody, Discovery Room

AJP: Regulatory, Integrative and Comparative Physiology

Editor and Associate Editors
Sunday, April 1, 7:30 AM
Peabody, Conway Room

Journal of Applied Physiology

Editor and Associate Editors
Monday, April 2, 7:30 AM
Peabody, Fairview Room

News in Physiological Sciences

Editor and Associate Editors
Tuesday, April 3, 12:00 PM
Peabody, Columbia Room

Book Committee

Monday, April 2, 7:30 AM
Peabody, Conway Room

History of Physiology Book Committee

Monday, April 2, 12:00 PM
Peabody, Fairview Room

106th Congress Grants NIH 14% Increase

The NIH budget for FY 2001 was finally approved on December 21 when President Clinton signed into law a bill providing \$20.3 billion for the NIH for the fiscal year that had begun on October 1, 2000.

Between October 1 and that date, the NIH had been forced to operate at its FY 2000 spending level under a series of continuing resolutions. Congress, which had been unable to complete FY 2001 legislation prior to the election, had to return for a lame duck session that dragged out until the outcome of the presidential election was resolved.

Although short-term continuing resolutions have become routine in recent years, the lengthy delay interfered with NIH's ability to provide full funding for new grants and to begin new programs. There had also been also growing concern that Congress might decide to save money by leaving the remaining agencies at their FY 2000 levels for the rest of the year. This would have jeopardized efforts to achieve a doubling of the NIH budget over five years.

The difficulty in reaching a final agreement on FY 2001 funding was symptomatic of the contentious atmosphere that was also played out in this year's electoral impasse. The post-election congressional session was also overshadowed by the presidential contest because Members of Congress were unwilling to finish their work until the election was decided. Then, even though the spending legislation itself was ready to go, a last-minute dispute over Alaskan fishing seemed to threaten yet another delay. Finally, late in

the day on Friday, December 15, the House and the Senate approved the final "must pass" legislation and the 106th Congress adjourned.

In the end, Congress provided the NIH with a \$2.5 billion increase or 14.2% more than its FY 2000 budget. Final passage of the bill was greeted with profound relief within the medical research community. "We are so grateful to the Administration and to the lawmakers who, in a bipartisan spirit, supported the third year of significant increases to the NIH's budget, continuing the momentum to double the agency's budget by 2003," said Mary Hendrix, president of the Federation of American Societies for Experimental Biology.

The final figure for the NIH was \$200 million below the figure that House-Senate conferees had agreed to in November. That agreement would have given the NIH its third 15% increase. However, some congressional leaders and even Senate Labor-HHS-Education Subcommittee Chairman Arlen Specter (R-Pa.) repudiated the conferees' agreement as too costly, and it seemed likely that some cuts would be made. At one point, there was concern that the NIH

might lose as much as \$500 million in the efforts to reduce the overall spending total of the legislation. However, NIH's congressional champions remained steadfast in their efforts to secure the third installment in the five-year doubling of the NIH budget.

The Labor-HHS-Education spending bill containing the NIH budget was combined with the other remaining spending bills and various provisions lawmakers wanted to see enacted in the 106th Congress. The NIH portion of the legislation contains some new programs and some technical modification of existing laws. These provisions include:

Salary caps on grants or other extramural funding mechanisms at NIH and the Substance Abuse and Mental Health Services Administration have been raised to \$157,000. Those caps are now pegged to level I of the senior executive service. Previously, the cap was pegged to level II, which is currently about \$141,000.

The usual limit on temporary presidential appointments is being overridden, which will allow acting NIH director Ruth Kirschstein to remain in that position until the Senate confirms a new director.

NIH to Create New Bioimaging Institute

Among the final actions taken by the 106th Congress in its post-election session was approval of legislation establishing a new institute to house bioimaging and bioengineering research. The bill passed the Senate on Friday, December 15. President Clinton signed the bill into law on December 29, 2000.

The bill had passed the House in October but languished in committee after it went to the Senate. NIH, which recently established an office devoted to bioengineering, bioimaging and bioinformatics, had private expressed concerns

about the legislation. However, Senate Majority Leader Trent Lott, who sponsored the Senate version of the bill, brought the bill to the floor on the last day of the session, and it was passed by voice vote.

The legislation had strong support from American Institute for Medical and Biological Engineering and the Academy of Radiology Research, which have been working with NIH to build bioimaging and bioengineering research and to raise the visibility of their disciplines within the scientific community.

A clinical research loan repayment provision that would allow extramural clinical researchers to participate in an existing loan repayment program for clinical researchers from disadvantaged backgrounds.

NIH must report back to Congress by July 2001 with a plan to ensure that the public can benefit from the NIH's investment in basic research. The plan is supposed to address the high cost

Public Affairs

to patients of FDA-approved therapeutic drugs that have reached sales of \$500 million in the US and were developed with NIH funding.

Legislators asked the NIH director to formulate a plan to meet demands for human tissue to be used in research. Noting that a recent expert panel review that found a rapidly expanding and unmet need for human tissue samples for research, the conferees requested that NIH provide further information

this spring at its FY 2002 appropriations hearings.

NIH was provided with \$130.2 million to fund the newly authorized National Center for Research on Minority Health and Health Disparities. The new center is expected to carry on efforts currently underway in the Office of Research on Minority Health located in the NIH Office of the Director. Congressional sponsors of this initiative included Rep. Jesse Jackson, Jr., D-IL,

in the House and Senators Edward Kennedy, D-MA, and Bill Frist, R-TN.

The National Center for Research Resources was provided with \$100 million for a program intended to build research infrastructure in states that have not competed successfully for NIH funding. This program is called the Institutional Development Awards or IDeA program. ❖

Congress Provides a 9% Increase for VA Medical Research

The Department of Veterans Affairs (VA) medical and prosthetics research program received a \$30 million increase. The additional 9.3% brought its budget to \$351 million for FY 2001.

In its budget submission a year ago, the Clinton administration had requested only \$321 million for FY 2001, the same as the FY 2000 funding level for this program. Furthermore, the FY 2000 budget represented only a \$5 million increase over FY 1999. However, VA medical research supporters in the House added a \$30 million increase when the bill was brought to the floor of that chamber. The Senate Appropriations Committee recom-

mended only \$331 million, but agreed to \$351 million in the House-Senate conference agreement.

Report language accompanying the House version of the bill addressed the issue of how the VA should allocate VERA administrative funds associated with research, a contentious issue at many VA Medical Centers. The House report encouraged the VA to "align the VERA research allocation with designated time for clinician-investigators to conduct research." The House report language also directed VA to extend through FY 2001 its policy assigning administration of the VERA research allocation to medical centers, and also

to evaluate new accounting systems in terms of their effectiveness in ensuring adequate support for research salaries, facilities and administration. The Senate report language supported these recommendations.

The FY 2001 appropriation does not contain any disease-specific spending earmarks but the accompanying reports "encourage" the VA to increase its efforts in particular areas, including prostate cancer, diabetes, Hepatitis C, neurofibromatosis, and lymphoid malignancies, as well as to explore the possibility of establishing a nursing research program. ❖

NIH Increases Training Stipends

NIH has announced stipend increases for National Research Service awards (NRSA) to pre-doctoral and postdoctoral trainees.

These levels are a 9.6 percent increase in the predoctoral stipend an average increase of 5 percent for the postdoctoral rates. The budgetary changes will take effect for NRSA Awards made with FY 2001 funds. ❖

Table 1. New Stipend Levels for NIH awards

Years Postdoctoral Experience	Stipend
Predocctoral	16,500
0	\$28,260
1	\$29,832
2	\$35,196
3	\$36,996
4	\$38,772
5	\$40,560
6	\$42,348
7 or more	\$44,412



Outgoing Administration Pursues Research Ethics Initiatives

Government-Wide Research Misconduct Policy Issued

A government-wide Federal Policy on Research Misconduct was issued during the closing days of the Clinton administration, nearly five years after the National Science and Technology Council began trying to develop a uniform policy.

In announcing the policy, the White House Office of Science and Technology Policy (OSTP) noted that “Advances in science, engineering, and all fields of research depend on the reliability of the research record.” It also noted that “Sustained public trust in the research enterprise also requires confidence in the research record and in the processes involved in its ongoing development.”

The policy applies to “research conducted by the Federal agencies, conducted or managed for the Federal government by contractors, or supported by the Federal government and performed at research institutions, including universities and industry.” It consists of a definition of research misconduct as well as basic guidelines for the response of federal agencies and research institutions to allegations of research misconduct. The goal is to achieve a uniform standard for dealing with research misconduct. Federal agencies must bring their own regulations, policies, and procedures into conformity within one year of December 6, 2000, the date it was issued.

The final policy defines research misconduct as “fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.” It then provides definitions of fabrication, falsification, and plagiarism, adding that “research misconduct does not include honest error or differences of opinion.” It further stipulates that a finding of research misconduct also requires that:

There be a significant departure from the accepted practices of the relevant research community; and

The misconduct be committed intentionally, or knowingly, or recklessly; and

The allegation be proven by a preponderance of evidence.

The “Federal Policy on Research Misconduct” is available on the Office of Science and Technology website at http://www.ostp.gov/html/001207_3.html. The notice announcing and describing the policy is posted at http://www.ostp.gov/html/001207_2.html.

Office of Research Integrity Finalizes Policy on Instruction in the Responsible Conduct of Research

On Dec. 1, 2000, the Office of Research Integrity (ORI) published the final PHS Policy on Instruction in the Responsible Conduct of Research for extramural institutions receiving PHS funds for research or research training. The policy requires research staff at extramural institutions to “complete a basic program of instruction in the responsible conduct of research.” It also defines which research staff members are covered and what the instruction program must cover.

The draft policy had been announced in July and was followed up in early August with a meeting convened by ORI and the PHS agencies with representatives from extramural institutions to discuss the draft policy. The ORI also received about a hundred written comments from individual scientists and extramural institutions, which raised a number of concerns. These included that the mandate to provide training was excessively broad, and that it would be both difficult and financially burdensome to implement within the two-year phase in period proposed.

For the text of the policy and additional information such as instructional materials on the Responsible Conduct of Research and a set of Frequently Asked Questions, go to the ORI website at <http://ori.hhs.gov/html/programs/rcr-contents.asp>

Human Subjects Protection Efforts Advance

On December 14, 2000, Department of Health and Human Services Secretary Donna Shalala appointed a twelve member National Human Research Protections Advisory Committee (NHRPAC) to advise the Office of Human Research Protection (OHRP). The committee was created to serve as the department's “principal advisory body on issues pertaining to human subjects protections and responsible conduct of human research,” according to a press release issued by Shalala's office.

The establishment of the advisory committee had been announced in June 2000 when the new HHS Office for Human Research Protections (OHRP) was created to replace human subjects oversight function previously housed within the NIH's Office for Protection from Research Risks. All these steps are part of an HHS initiative to further strengthen protections of human research subjects in clinical trials, including those involving gene transfer, according to Shalala's office.

Meanwhile, an IOM committee established to create guidelines for the evaluation of institutional human subjects review programs requested public comment on a set of draft standards at a January meeting. The Committee on Assessing the System for Protecting Human Research Subjects scheduled a January 22 meeting to enable the public to comment on the draft report on accreditation of human subjects review programs (HRRPs).

In addition to providing an opportunity for comment on the draft standards, the meeting was also intended to enable the committee to “obtain information and perspectives on accreditation as a mechanism to improve the protection of human research subjects as provided by HRRPs.”

HHS Proposes Whistleblowers Protection Plan

On November 28, 2000, the Department of Health and Human Services

published a Federal Register Notice of Proposed Rulemaking concerning the establishment of “Public Health Service Standards for the Protection of Research Misconduct Whistleblowers.” The proposal would require institutions receiving PHS funds to “follow certain requirements for preventing or otherwise responding to occurrences of retaliation against whistleblowers.”

The notice stated that the proposed regulation will give institutions “wide latitude in the types of administrative proceedings they may choose to offer.”

However, it added, “The proceeding must meet certain minimum standards such as allowing the whistleblower an opportunity to be represented by counsel and having a qualified, objective decision-maker.” The terms “qualified” and “objective” were not defined, although it suggested that decision-makers should have “significant training, experience, or expertise in adjudicating disputes.” Comments on the proposal were due in January. ❖

107th Congress Faces Organizational Hurdles

Significant organizational issues confronted both the House and the Senate when the 107th Congress convened in January. On the House side, many Committee chairmanships were open because of a rule adopted in 1994 by the newly installed Republican majority. The Republicans agreed to limit committee chairs to a maximum of six years in order to avoid the entrenchment in power that occurred while Democrats held the majority. However, the fallout from this was a sometimes-bruising game of musical chairs 2001.

The House term limit rule for chairs was also a key reason why Labor-HHS-Education Appropriations Subcommittee Chairman and NIH champion John Porter decided to retire last year. Rep. Ralph Regula (R-Ohio) was expected to succeed Porter as head of the House panel responsible for NIH funding, although that still had to be finalized. Rep. Henry Bonilla (R-Texas) was expected to become the chairman of the House Appropriations Subcommittee that oversees funding for the USDA, including Animal Welfare Act enforcement. Rep. Bonilla is also a member of the Labor-HHS subcommittee. Rep.

James Walsh (R-NY) was expected to remain as head of the VA, HUD and Independent Agencies Subcommittee, which oversees funding for the NSF, the VA and NASA.

On the Senate side, a 50-50 split between Republicans and Democrats was yet another quirk of election 2000, and the challenge was to devise with operating procedures acceptable to both parties. Democrats held the effective majority for the first 17 days of the 107th Congress while the Clinton administration was still in power and Al Gore wielded the tie-breaking 51st vote. However, this was a transient oddity. The more substantive question was, how would the Senate govern itself, and in particular, what would be the ratios of Republicans to Democrats on committees.

The number of seats each party gets on committees depends upon how many seats they hold overall. This ratio can be crucial in getting legislation out of committee to bring it to the floor. Since Republicans and Democrats were evenly split in the Senate, the Republicans did not have the votes make this determination without the concurrence of the

Democrats. Although many Republicans argued that they should have a one-seat majority on committees since they will be the majority party when Vice President-elect Dick Cheney is the one casting the tie-breaking vote, both parties finally agreed to a power-sharing arrangement. Each side will have equal representation on committees, but in the event of a tie vote in committee, legislative matters or nominations can be brought to the floor at the request of either party.

In terms of key committee posts, despite some uncertainty, it seemed likely that Sen. Arlen Specter (R-PA) would return to chair the Senate Appropriations Subcommittee on Labor-HHS-Education. Last October after efforts to achieve compromise seemed likely to result in an unacceptably costly bill, Specter announced in frustration that he would no longer chair the subcommittee. However, a number of biomedical research advocacy organizations subsequently urged him to reconsider his decision because of the strong support he has shown for the NIH, and there were indications that he might remain as head of that panel. ❖

NIH Notices: Protocol Review Procedures and Animal Care Policy Materials

The NIH published a notice in the NIH Guide for Grants and Contracts reminding researchers that IACUC of research protocols involving animal studies must be completed prior to peer review. Notice OD-01-008 states that IACUC approval for all such applications should be provided either when the application is submitted, or within 60 days thereafter. Otherwise, the application cannot be peer reviewed. The notice is available online at <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-01-008.html>

This policy stands in contrast to a change in policy with respect to Institutional Review Board (IRB)

approval of research protocols involving human subjects. In notice OD-01-031, dated December 6, 2000, the NIH reiterated that beginning with applications submitted for the January 2001 Council round, "IRB approval is no longer required prior to NIH peer review of an application which covers human participants." The change in policy "is intended to provide flexibility at the institutional level to reduce the workload burdens that many IRBs are currently facing, while still ensuring full protection of participants in human studies." This is posted at <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-00-031.html>

The Office of Laboratory Animal Welfare (OLAW) has announced that it has copies available of a reprinted version of the PHS Policy on Humane Care and Use of Laboratory Animals. The reprint is an updated version in a smaller format of the original Policy promulgated in 1986 to implement the Health Research Extension Act of 1985. Updated elements include revised citations and addresses. In addition, language that was clarified in a 1996 reprint to eliminate common areas of confusion has been retained. To request a copy of the reprint, contact OLAW at olaw@od.nih.gov or call 301-594-2506. ❖

President Signs Chimpanzee Retirement Law

On December 20, President Clinton signed into law a bill to provide for the long-term care of chimpanzees previously used in biomedical research. However, he issued an unusual statement outlining his reservations of "flaws in the bill that the next administration and the Congress should correct to ensure the viability and effectiveness of the proposed sanctuary system."

The legislation, known as the Chimpanzee Health Improvement,

Maintenance, and Protection Act, would establish a system of privately operated "sanctuaries" for federally-owned chimpanzees that are no longer needed for biomedical research. It was approved by unanimous consent in the Senate on December 6 after House approval on October 24.

In signing the bill, Clinton noted that the legislation "is a valuable affirmation of the Federal Government's responsibility and moral obligation to provide

an orderly system to ensure a secure retirement for surplus Federal research chimpanzees and to meet their lifetime needs for shelter and care." However, he noted that the legislation "puts severe constraints on the use of a chimpanzee for further research once it has been declared 'surplus.'" The President also noted "concerns" with the administrative structure and funding of the sanctuary system authorized by the legislation. ❖

Porter Donates Campaign Funds to Endow Research Chair

Retiring Congressman John Porter, the former chair of the House Labor-HHS-Education Appropriations Subcommittee, announced that he would donate his unused campaign funds—approximately \$325,000—to finance a professorship in biomedical research at Northwestern University Medical School. Porter, a Republican who represented Illinois' 10th district, was one of the NIH's staunchest champions on Capitol Hill. According to a Northwestern University press release, Porter's donation will be used as a "leadership gift" to fund a

Professorship of Biomedical Research that Northwestern University Medical School will establish in his name. Northwestern hopes to raise a total of \$2 million to endow a perpetual professorship in Porter's name.

"This nation must continue to place the highest priority on basic research to battle the war we face against disease," Porter said in announcing the professorship. "I can think of no better use for this campaign money than to invest it in health research that will benefit the needs of society." Porter, who served 11 terms in the US House of Representa-

tives, before retiring at the end of 2000, earned an undergraduate degree from Northwestern University in 1957. In 1999, the university honored him with an Honorary Doctor of Laws Degree in recognition of his "legislative leadership on behalf of biomedical research."

Stephen D. Miller, professor of microbiology-immunology and director of the Interdepartmental Immunobiology Center at the Northwestern University Medical School, has been named to the professorship. ❖

Activist Organizations Continue to Grow

The monthly activist newspaper *Animal People* recently published its annual report on the finances of animal-related charities. Animal People compiled the report using copies of IRS Form 990 that it requested from nonprofit organizations that claim to work on behalf of animals. Financial data from the Form 990 filings of 130 such charities was compiled and presented along with an overview of their programs. The report also included notes about anomalies or controversies associated with programs or financial management, such as violations of the standards that nonprofits are expected use in allocating costs between programs and administrative overhead. In November 2000, *Animal People* published its report on 1999 financial data.

The report included many of the major animal activist groups that conduct campaigns against medical research. Notable absences included the Liberation Collective, the National Activist Network, Protecting Our Earth's Treasures, and the Physicians Committee for Responsible Medicine. PCRM data appeared in the 1998 report but the organization declined to supply its 1999 IRS Form 990.

Eleven major organizations included in the 1999 report accounted for com-

bined budgets totaling more than \$90 million. The two largest organizations by far are the Humane Society of the United States (HSUS) with a staggering \$51,560,147, and People for the Ethical Treatment of Animals (PETA) with \$16,487,851. In contrast, in 1998, twelve major organizations (the same eleven along with PCRM) had combined budgets of \$75 million.

A supplemental note concerning the HSUS said that in 1999 it had transferred \$5,434,566 to affiliated organizations including the National Association for Humane & Environmental Education, Humane Society International, Center for Respect For Life & Environment, Earthvoice International, Wildlife Land Trust, Worldwide Network, Inc., and Meadowcreek Inc., which is an Arkansas-based organic vegetable-growing project. "Most and perhaps all of these affiliates are controlled by the board and senior staff of HSUS," according to *Animal People*. The note

went on to say that "Technically, HSUS did not end 1999 with more than twice its annual budget in cash and securities reserves—but only because of the payments to affiliates, whose reserves may be used in connection with HSUS projects, yet do not appear on the HSUS filing of IRS Form 990."

A note concerning PETA said that it had "ascribed to program services \$309,546 spent in connection with the sale of fundraising merchandise, and at least \$4,252,855 spent for 'campaigns' which appear to have consisted chiefly of direct mailing, beyond the \$551,284 which PETA acknowledged spending on fundraising mailings in the name of education."

Highlights of the report are provided in the table below. The complete report is available on line at <http://www.animalpeoplenews.org/watch-1.html>. Additional financial information about nonprofit organizations is available at <http://www.guidestar.org/>, which is a project of Philanthropic Research, Inc.

Table 1. 1999 Budgets and Programs for Animal Activist Organizations

Organization	1999 Budget	1999 Programs	1998 Budget
American Anti-Vivisection Society	\$1,088,433	\$1,012,233	\$1,087,241
Animal Legal Defense Fund	\$2,929,360	\$1,924,092	\$2,363,019
Doris Day Animal League	\$2,298,227	\$1,871,8984	\$2,405,903
Friends of Animals	\$4,289,534	\$3,768,089	\$4,514,292
Fund for Animals	\$6,383,888	\$5,311,129	\$5,445,455
Humane Society of the US	\$51,560,147	\$29,746,546	\$36,633,759
In Defense of Animals	\$1,707,270	\$1,390,001	\$1,491,213
Last Chance for Animals	\$657,946	\$441,895	\$629,404
National Anti-Vivisection Society	\$2,153,309	\$1,535,661	\$2,012,888
New England Anti-Vivisection Society	\$1,052,240	\$643,263	\$1,392,009
People for the Ethical Treatment of Animals	\$16,487,851	\$14,417,787	\$14,543,860
Physicians Committee for Responsible Medicine*	\$2,160,634		

*The Physicians Committee for Responsible Medicine declined to provide 1999 data.

"Communicating About Science": The EB Public Affairs Symposium

The APS Public Affairs Committee has organized a public affairs symposium to be presented on Saturday, March 31, at the EB 2001 meeting in Orlando. The event will be cosponsored by FASEB and the other FASEB societies that are participating in the meet-

ing. The program is entitled "A Call to Activism: Communicating about Science." Featured speakers will include FASEB President Mary Hendrix, Kim Cavendish of the Orlando Science Center, Kawanza Griffin of *The Milwaukee Journal*, and Hyman Field,

of the National Science Foundation. The program will take place from 3-5:30 pm in Room 311GH of the Orange County Convention Center on Saturday, March 31, and will be chaired by Public Affairs Committee Chair William Talman. ♦

Positions Available

Assistant Professor, Cardiovascular Physiology:

Individuals employing modern cellular and molecular approaches to investigate the physiology of organs and organ systems are invited to apply for a 12-month tenure-track position at the Assistant Professor level in the Department of Physiology at the University of Oklahoma Health Sciences Center. Candidates must possess a PhD, MD, or equivalent degree and at least two years of postdoctoral experience. Preference will be given to candidates with anticipated/current research funding from national sources and expertise in cardiovascular physiology or developmental cardiovascular physiology. The successful candidate will be expected to pursue an active, independent research program and participate in medical and graduate teaching. The University of Oklahoma Health Sciences Center offers excellent opportunities for collaboration with multidisciplinary groups of cardiac/vascular scientists as well as fetal/neonatal physiologists. Applicants should submit a curriculum vitae and a brief description of current and future research interests and have three letters of reference sent to: Dr. Sinya Benyajati, Department of Physiology, College of Medicine, The University of Oklahoma Health Sciences Center, PO Box 26901, Oklahoma City, OK 73190. Fax: 405-271-3181; email: siribhinya-benyajati@ouhsc.edu; Internet: <http://w3.ouhsc.edu/physiology>. Completed applications will be accepted until January 31, 2001. Anticipated starting date: Fall 2001. [EOE]

Biology Faculty Position: The University of St. Thomas Department of Biology in St. Paul, Minnesota invites applications to fill a one-year Visiting Assistant Professor position for the 2001-2002 academic year. Candidates should be broadly trained in biology and be committed to teaching in a liberal arts setting. Teaching responsibilities will include a two-semester comparative anatomy/physiology sequence for majors and sections of either majors or non-majors introductory courses. Candidates must have a PhD. Teaching experience is preferred. The University of St. Thomas is a private, Catholic, comprehensive, liberal arts university with an undergraduate student body in excess of 5,000. The Department of Biology has a membership of 12 faculty and 4 staff. Additional information about the department is available on our website: <http://department.stthomas.edu/BIOL/>. Send letter of application (refer to Position #200402), curriculum vitae, statement of teaching philosophy, proposal for the anatomy/physiology sequence you would like to teach, and three letters of recommendation to: Human Resources, Mail #AQU217, 2115 Summit Avenue, St. Paul, MN 55105. To guarantee consideration, completed applications are due by January 29, 2001. [AA/EOE]

Assistant Professor of Biological Sciences/Molecular Physiology:

The Department of Biological Sciences at the University of Alaska Anchorage invites applications for a tenure-track faculty position as an Assistant Professor. The position is a full-time, nine-month regular appointment with benefits. Salary will be appropriate to an entry-level Assistant Professor. Candidates must meet the following requirements: 1) PhD in biology or relevant scientific field, 2) evidence of teaching experience in relevant area, 3) postdoctoral research experience, 4) at least one publication as first author in a refereed journal, 5) ability to obtain extramural research funding, and 6) ability to establish an independent research program. The position will be available after August 15, 2001. We seek applicants with postdoctoral training and the ability to develop an externally funded research program in animal physiology that uses molecular approaches to investigate adaptations of animals to arctic and high latitude environments. Opportunities for collaboration exist both within the University of Alaska and among the statewide community. Candidates whose research areas complement those of existing programs are strongly encouraged to apply. Primary teaching responsibilities include human anatomy and physiology, and upper division and/or graduate classes in an area of expertise. The standard five-part workload is two parts teaching, two parts research, and one part University/public service, with modifications to the workload possible, pending EPSCoR funding. Further information about the department can be found at <http://www.uaa.alaska.edu/biohome/biology.html>. The search will remain open until filled; however, review of applications will begin January 1, 2001. Interested candidates should submit a letter of interest (note position PCN: 301439); a statement of teaching and research goals and philosophy; a curriculum vitae; and the names, addresses, phone numbers, and email addresses of three references qualified to comment on teaching and research potential to: University of Alaska Anchorage, Human Resource Services, Administration Building, Suite 245, 3211 Providence Drive, Anchorage, AK 99508-8136. Tel: 907-786-4608; TTY: 907-786-1420; fax: 907-786-4727. University of Alaska Anchorage Employment Information Website: www.fin-sys.uaa.alaska.edu/uaahrs. Applicants needing reasonable accommodations to participate in the application or interview process should contact the Human Resource Services. Candidates must be eligible for employment under the Immigration Reform and Control Act as of 1986 and subsequent amendments. Applications for employment with the University of Alaska are subject to public disclosure. UAA is an AA/EO Employer and Educational Institution.

Positions Available

Postdoctoral Positions: Applications are requested for two postdoctoral positions in a unique NIH-funded multidisciplinary program involving hyperbaric oxygen therapy. Postdoctoral training is offered in laboratories using molecular, genetic, cellular, and physiological approaches to study the effects of hyperbaric oxygen on angiogenesis, tumor cell growth, cell-to-cell adhesion, and free radical production/pathogenesis. An opportunity for investigating the clinical effects of hyperbaric oxygen on angiogenesis and quantitative analysis of tissue oxygenation is also available. Individuals with clinical experience who are interested in obtaining research training will receive special consideration. Laboratories available are: 1) tumor biology and angiogenesis: effects of hyperbaric oxygen on angiogenesis and hypoxia in post-radiation normal tissue and tumors; 2) clinical studies with laryngectomy patients: clinical outcomes modeling for laryngectomy surgery patients and efficacy of hyperbaric oxygen therapy; 3) cell biology and lung injury: effect of normo? and hyperbaric hyperoxia on the fate of tumor cells and leukocytes in the pulmonary circulation; 4) oxidant injury: oxygen-dependent elevation of nitric oxide production in vivo. Appointment as a postdoctoral fellow/researcher requires an advanced degree: PhD, MD, or equivalent. It is the responsibility of the postdoctoral fellow to certify that he/she has received his/her degree or has fulfilled the advanced degree requirements before the appointment is processed. More information is available on the Internet at <http://www.med.upenn.edu/ifem>. Please send curriculum vitae and names of three references to: Wendy Kelly, Institute for Environmental Medicine, University of Pennsylvania School of Medicine, 3620 Hamilton Walk, 1 John Morgan Building, Philadelphia, PA 19104.

Assistant Research Scientist: The Division of Rheumatology, Department of Internal Medicine, University of Iowa College of Medicine, has an opening for an Assistant Research Scientist to perform basic or applied research in the molecular mechanism of action of CpG oligonucleotides in collaboration with the other investigators of the CpG research group. A person in this classification has the academic knowledge of molecular immunology generally associated with a doctoral degree or an equivalent professional degree, i.e., MD, DDS, or DVM. In addition, the person will have demonstrated the ability to plan and execute a research study through some progressively responsible independent research work. Considerable experience with molecular biology techniques, cell techniques, flow cytometry techniques, and animal experimentation is desired. Please send a resume and cover letter indicating #44459 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA 52242-1081. Women and minorities are strongly encouraged to apply. [EOE/AA]

Instructor/Assistant/Associate Professor of Biology Physiology and Anatomy: Nine-month tenure track position in the Department of Biology at Wartburg College in Waverly, Iowa. We require a minimum of ABD in an appropriate scientific area (PhD required for Assistant or Associate Professor status.) Also required is demonstrated expertise in physiology, willingness to teach interdisciplinary and team-taught biology and general education courses. Preference will be given to candidates who have completed their doctorate, have college-level teaching and research experience, and experience in pre-medical advising. Responsibilities include teaching two-term upper-level mammalian A&P sequence, general biology for majors, and general education courses; supervision of undergraduate research; advise pre-medical students; scholarship and service appropriate to the liberal arts setting. Salary is competitive. Send letter of application, curriculum vita, and names, addresses and phone numbers for three references to Ann Henninger, Chair of Biology Department at Wartburg College, 222 Ninth Street NW, Waverly, IA 50677-0903 or Email ahenninger@wartburg.edu. Wartburg is a four-year liberal arts college of the Lutheran Church and an AA/EO employer. For more information about Wartburg, see <http://www.wartburg.edu>.

Postdoctoral Position: The University of Texas Southwestern Medical Center is seeking a postdoctoral fellow to study the role of estrogen in the neural control of the peripheral circulation and blood pressure regulation. This individual will be responsible for developing and performing experiments in rat and transgenic mouse models to study both genomic and non-genomic effects of estrogen on sympathetic regulation of skeletal muscle blood flow and arterial blood pressure. Ample opportunity will be available to interact with other investigators in the group who are performing complementary experiments in humans. Applicants should have a PhD and/or MD and 1-2 years relevant experience in cardiovascular physiology or neurophysiology. Experience in small animal surgery is desired. This NIH-funded position is available immediately. Please send curriculum vitae to: Dr. Gail Thomas, Hypertension Division, University of Texas Southwestern Medical Center, 5323 Harry Hines Blvd., Dallas, TX 75390-8586. Email: gail.thomas@utsouthwestern.edu. [EOE]

Positions Available

Biomedical (Mathematical) Modeler: The United States Army Research Institute of Environmental Medicine, Biophysics & Biomedical Modeling Division, located near Boston, MA in Natick, MA, invites applicants to apply for the above permanent position. This position will be responsible for providing research and technical support for US Army-sponsored biomedical and biophysics prediction modeling to various research studies related to environmental stress. Candidates must possess a PhD (or near candidacy) in the biophysical or physical sciences with some knowledge of human (systems) physiology or a closely related field and have experience in the mathematical and computer sciences research area. Experience is necessary in knowledge of mathematical models, especially multi-node thermoregulatory models, computer languages, and bio-thermal engineering (human response to the environment) research in humans. Knowledge of various computer hardware and software systems (UNIX or PC-Windows based) and in-depth experience of applied engineering and biophysics methods are a plus. Candidates can obtain further information by sending a letter of interest and resume or curriculum vitae to: Dr. Richard R. Gonzalez, Chief, Biophysics & Biomedical Modeling Division, US Army Research Institute of Environmental Medicine, Natick, MA 01760-5007. Tel: 508-233-4848; email: richard.gonzalez@na.amedd.army.mil.

Assistant Professor—Exercise Physiology: The Department of Exercise and Sport Sciences at the University of Florida has a position available for an assistant professor. Candidates should have an earned doctorate in exercise physiology, physiology, and/or biochemistry/molecular biology; investigative interest in the molecular/cellular aspects of exercise using human and/or laboratory animal research models; and postdoctoral research training; university teaching/advisement experience is desired. The Department is seeking a team-oriented faculty member that will collaborate with existing faculty on research of mutual interest. The position is available on August 10, 2001 and is an annual nine-month tenure accruing position. Salary will be commensurate with experience. The application deadline is **March 1, 2001**. Interested candidates should send a letter of application, a statement of research interests/career goals, a curriculum vitae, three representative reprints, transcripts, and three letters of recommendation to Dr. Steve Dodd, Chair, Search Committee, Department of Exercise and Sport Sciences, University of Florida, PO Box 118206, Gainesville, FL 32611-8206. Position descriptions may be viewed at: <http://www.hhp.ufl.edu/ess/job.htm>. [EOE/AA]

Assistant Professor: The Department of Kinesiology at the University of Illinois at Urbana-Champaign is seeking qualified applicants to fill a tenure-track position at the Assistant Professor level in the area of Exercise Physiology. Candidates will be expected to contribute to interdisciplinary research within the Department, seek extramural funding, teach at the undergraduate and graduate levels, and advise and direct student research. The successful candidate will be expected to complement Departmental strengths in human lifespan physical activity (including aging), disability, disease or rehabilitation. Potential research areas include muscle function, body composition, cardiovascular physiology, and neuroendocrine/metabolism. Laboratories exist both within the Department of Kinesiology and campus-wide to support research in exercise physiology. Further information about the Department of Kinesiology and current faculty can be found at <http://www.kines.uiuc.edu>. Qualifications: An academic background in Kinesiology or related field and the ability to teach one or more courses in Kinesiology and exercise physiology. A doctorate is required. Teaching and post-doctoral experience are preferred. Salary is commensurate with experience and qualifications. To assure full consideration, a letter of application, vita, and three letters of recommendation should be submitted by February 1, 2001. The appointment will be effective August 21, 2001. Interviews may be conducted before the closing date, but all applications will receive full consideration and the final decision will not be made until after that date. Application materials should be sent to: Jeffrey A. Woods, Search Chair; Department of Kinesiology; University of Illinois at Urbana-Champaign; 61-a Louise Freer Hall; 906 South Goodwin Avenue; Urbana, IL 61801. Tel: 217-244-8815; Fax: 217-244-7322. The University of Illinois is an Affirmative Action Equal Opportunity Employer. All qualified applicants are encouraged to apply.

Systems Physiologist: Wyle Laboratories, Life Sciences, Systems & Services, located near Johnson Space Center in Houston, TX invites applicants to apply for the position of Systems Physiologist. This position will be responsible for providing research and technical support for NASA-sponsored flight experiments and ground-based studies. Candidates must possess a MS in Human Physiology or a closely related field and have experience in life sciences research. Experience in preparing proposals and manuscripts are a plus. Qualified applicants should send a scanner legible resume, list of references and salary requirements to: Wyle Life Sciences, Human Resources Department, 1290 Hercules Drive, Suite 120, Houston, TX 77058-2787; Fax (281) 212-1211 or Email to tcoker@hou.wylelabs.com. EOE, M/F/H/V Smoke-free workplace. Visit our webpage at www.wylelifesciences.com.

Positions Available

In vivo specialists: The Merck Research Laboratories (MRL) division of Merck & Co., Inc., a world leader in biomedical research, is recruiting a limited number of excellent scientists with proven expertise in animal physiology and pharmacology. Successful candidates will participate in drug discovery programs at our research facilities in the US, Canada, and the United Kingdom, working with renowned colleagues in other disciplines to explore the full range of therapeutic opportunities in central nervous system disorders, obesity, diabetes, cancer, infectious diseases, and diseases affecting cardiovascular, pulmonary, urogenital, ocular, endocrine, and immune function, including transplantation. Our major international research sites possess state-of-the-art facilities, including remote acquisition of biological data through telemetry, non-invasive imaging using both NMR and PET, and the capability to generate and phenotypically characterize transgenic animals. MRL has achieved unparalleled success in the pharmaceutical industry as a result of its unwavering commitment to fundamental research. A listing of scientific publications from MRL through 1999 can be obtained at our Web site: <http://www.merck.com/mrl/staffpub> or by writing to the address below. Applicants may be drawn from disciplines that include, but are not limited to, pharmacology, physiology, neurosciences, psychology, and veterinary medicine but must have significant expertise in in vivo techniques. Candidates preferably will have some postdoctoral experience, a superior record of accomplishment in biomedical research as demonstrated by a strong publication record, and excellent communication skills. We seek individuals who share our core research values in the development of innovative medicines for the treatment of disease. Our salaries, benefits, and growth potential are excellent. Applicants interested in working at any of our sites should send their curriculum vitae (including the names and addresses of three potential references), a statement describing their research interests, and their preference (if any) with respect to work location, to Neyda Conklin, Ad #120, Merck & Co., Inc., PO Box 2000, R80Y-135, Rahway, NJ 07065. Email: neyda_conklin@merck.com (please reference Ad # 120 in subject line). If applying by email, please attach your resume, preferably as an MS Word document. [EOE]

Assistant/Associate Professor, Physical Activity and Aging: The University of Kansas Department of Health, Sport & Exercise Sciences, School of Education, has a tenure-track position available for an Assistant/Associate Professor beginning August 2001. Required qualifications: appropriate doctoral degree to study physical activity and aging completed before August 1, 2001; excellent oral and written communication skills; and potential for effective teaching and external funding. To qualify for associate professor, it is expected that a prior record of successful university teaching, research, and external funding is evident. Preferred qualifications: prior teaching experience at the college level; postdoctoral training; professional experience in a clinical, community, or research setting; external funding or potential to obtain external funding; and involvement in community collaboration projects and professional organizations. Review of applications begins **March 16, 2001** and continues until the position is filled. A complete application includes: letter of application, resume or curriculum vita, three letters of recommendation, and up to three publications. Send to: Kim Johnson, 1301 Sunnyside Ave., Room 104, Health, Sport & Exercise Sciences, University of Kansas, Lawrence, KS 66045. Search Committee Chair: Matthew Adeyanju (Tel: 785-864-5552; Email: matthewa@ukans.edu). For more information, visit <http://www.so.e.ukans.edu>. [EOE/AA]

Tenure-Track Faculty Position: The Department of Biology, University of Wisconsin-River Falls, invites applications for a full-time Tenure-Track Faculty Position in anatomy and physiology. A PhD is required and postdoctoral experience is preferred. Preference given to candidates with demonstrated ability to teach Anatomy and Physiology, Human Biology and Introduction to Biology. The ability to teach a course in Comparative Anatomy and/or Embryology is desirable. The normal teaching load is 12 credits per semester. Additional expectations include development of an active research program that provides opportunities for undergraduate participation, student advising, and involvement in departmental, college, and University committees. Full vacancy notice and application information can be found at <http://www.uwrf.edu/biology/position01-11.html> and <http://www.uwrf.edu/oec/UNCLASSEMP/Biology.htm>. Review of applications will begin on **January 15, 2001** and continue until the position is filled. Position begins on August 27, 2001. [EOE/AA]

Commemorative Service for Carl V. Gisolfi

Experimental Biology 2001
Monday, April 2, 7:00-8:15 pm
Peabody, Orlando II

Positions Available

Tenure-Track Faculty Positions: Applications are invited for tenure-track faculty positions in the Department of Physiology & Biophysics at the University of Mississippi Medical Center. Academic rank is dependent on experience and qualifications. Applicants should have a PhD and/or MD degree with appropriate postdoctoral research experience and a good record of publications. Special consideration will be given to candidates with strong backgrounds in genomics and molecular and/or cellular physiology and research interests that complement existing areas of excellence in cardiovascular, renal, and neuroendocrine physiology, or the pathophysiology of kidney disease, hypertension, obesity, and vascular disease. The successful candidate is expected to develop a nationally recognized research laboratory supported by extramural funding and to contribute to the teaching and service missions of the department. The large group of multidisciplinary cardiovascular scientists in the department and in the Center for Excellence in Cardiovascular-Renal Research (CECR) offers excellent opportunities for collaboration. For more information, the physiology department and the CECR web sites can be accessed at <http://phys-main.umsmed.edu> and <http://cecr.umsmed.edu>. Applicants should send a curriculum vitae, a statement of previous and current extramural research funding, and the names of at least three references to: Dr. John E. Hall, Department of Physiology & Biophysics, University of Mississippi Medical Center, 2500 North State Street, Jackson, MS 39216-4505. [EOE, M/F/D/V]

Cardiothoracic Surgery—Physiologist: An excellent opportunity exists for a faculty position in the North Shore-Long Island Jewish Health System. This would involve establishing a laboratory examining issues related to cardiopulmonary bypass, myocardial protection, cerebral protection, and other aspects of heart and lung surgery. A background in cellular and/or molecular biology is required along with capability of working with small and large animals in this discipline. The program will be looking at establishing itself in the areas of cardiovascular and pulmonary physiology pertinent to cardiothoracic surgery. Candidates should have a PhD or MD degree and an excellent track record in publications and postdoctoral research experience. Applicants should submit a curriculum vitae, including a statement of research interests and the names of at least three references. Please forward curriculum vitae and inquiries to: H. Hank Simms, MD, Chairman, Department of Surgery, North Shore-Long Island Jewish Health System, 300 Community Drive, Manhasset, NY 11030. Tel: 516-562-2870; fax: 516-562-4821.

Postdoctoral Fellows/Research Associates: The Department of Physiology & Biophysics and the Center for Excellence in Cardiovascular-Renal Research of the University of Mississippi Medical Center invite applications for Postdoctoral Fellows/Research Associates to train in cardiovascular and renal research. Candidates must have a PhD and/or MD degree with research interests that complement existing areas of excellence in cardiovascular, renal, and neuroendocrine physiology, or the pathophysiology of hypertension and vascular disease. Postdoctoral Fellows will have the opportunity to learn a broad range of methods and research strategies, including genetics, molecular, biochemical, cellular, whole organ, and integrative biological approaches. Some of the current research areas in the Center include vascular biology, hypertension, diabetes and obesity, heart failure, kidney disease, atherosclerosis, and pre-eclampsia. Additional information can be found on the web site at <http://cecr.umsmed.edu>. Salaries are competitive, and there is opportunity for rapid promotion to the faculty position of Instructor. Applicants should send a curriculum vitae, a statement of research interests and career goals, a graduate transcript, and the names of three references to: Dr. John E. Hall, Department of Physiology & Biophysics, University of Mississippi Medical Center, 2500 North State Street, Jackson, MS 39216-4505. [EOE, M/F/D/V]

Postdoctoral Fellow/Research Associate: The Cardiovascular Disease Research Program in the Biomedical Biotechnology Research Institute at North Carolina Central University (NCCU) invites applications for Postdoctoral Fellow or Research Associate positions to train in the area of cardiovascular science. Ongoing projects include the analysis of perivascular nerve /smooth muscle interactions and intracellular Ca²⁺ signaling in small arteries using confocal laser microscopy, the development of transgenic mouse models to study molecular mechanisms of vessel innervation, the study of the novel endocannabinoid vasodilator pathway, and the study of the renin angiotensin system and target organ damage in hypertension. Salaries are competitive, and there is opportunity for promotion to the level of Research Scientist within the Institute. Applicants should send a curriculum vitae, a statement of research interests and career goals, a graduate transcript, and the names of three references to: Dr. Richard Bukoski, Director, Cardiovascular Disease Research Program, Biomedical/Biotechnology Research Institute, North Carolina Central University, 700 George Street, Durham, NC 27707. Email: rbukoski@wpo.nccu.edu. NCCU is located in the Research Triangle, offers opportunities for collaboration at Duke, UNC-Chapel Hill, and pharmaceutical/biotech firms in the triangle and provides easy access to the Blue Ridge Mountains and Outer Banks for recreational opportunities. [EOE, M/F/D/V]

Positions Available

Active-Living Coordinator: A position is available for an active-living coordinator to direct the development of a comprehensive set of resources for helping older adults become and stay physically active. Resources include books, videos, software, distance education courses, and educational workshops. This position involves conceptualizing resources, guiding the development of these resources, and promoting these resources. The position requires five years experience coordinating academic or scholarly projects, three years experience marketing and promoting programs, and excellent analytical and organizational skills. The position is located in Champaign, IL, home of the University of Illinois. The position comes with a competitive salary and excellent benefits package, including 401(k) with profit sharing, fitness facility, and subsidized cafeteria. To apply, send a cover letter and resume to Human Resources, Human Kinetics, PO Box 5076, Champaign, IL 61825-5076. Fax: 217-351-2674; email: nancyh@hkusa.com. For more info, visit <http://www.humankinetics.com>. [EOE]

Postdoctoral Research Position. A postdoctoral position at the level of Research Associate is immediately available in the laboratory of Professor Peter M. Lalley. The successful applicant will participate in an NIH-funded in vivo study of synaptic sites and mechanisms through which opioids depress the bulbar respiratory neural network. The position requires a PhD or MD degree, in vivo surgical expertise, as well as experience and skills with sharp microelectrode recording and electrophysiological data analysis. This position is funded for a minimum of three years by The National Institutes of Health, Heart, Lung and Blood Institute. Starting annual salary, \$28,260 plus 21% fringe benefits. Send a curriculum vitae and the names of three scientists familiar with the applicant's qualifications to Peter M. Lalley, PhD, Professor of Physiology, The University of Wisconsin, Madison, MSC, 1300 University Avenue, Madison, WI 53706. Email: pmlalley@facstaff.wisc.edu. [AA/EOE]

Postdoctoral Fellowship Position in Perinatal Physiology: Applications are invited for a postdoctoral fellowship position in maternal, fetal, and newborn physiology in the Department of Physiology & Biophysics at the University of Calgary. The successful candidate will participate in a Canadian Institutes of Health Research-funded project to investigate the influence of fetal environment on protective reflexes that the newborn utilizes to survive exposure to acute hypoxia as may occur during prolonged sleep apnea or positional asphyxia. The successful candidate will receive training in the fundamental principals of maternal, fetal, and newborn physiology, as well as acquiring the skills necessary to develop into an independent investigator. These will include, but not be limited to, instruction in hypothesis generation, experimental design, critical review of the literature, data presentation, manuscript preparation, and grant preparation. Interested individuals possessing either a PhD or MD degree should send a curriculum vitae along with short- and long-term goals, as well as the names, addresses, and telephone numbers of three referees to: Professor James E. Fewell, Department of Physiology & Biophysics, University of Calgary, 3330 Hospital Drive, NW, Calgary, Alberta, Canada T2N 4N1. Email: fewell@ucalgary.ca. Review of applications will commence immediately and continue until the position is filled.

Postdoctoral Position: A postdoctoral position is available immediately to study gender and hormonal influences on cerebrovascular reactivity, with special emphasis on endothelial function, including production of factors affecting contractility and blood coagulation. An advanced degree in pharmacology or physiology is required, and experience with in vitro techniques for studying smooth muscle contraction and/or biochemical approaches for analysis of endothelial function are highly desirable. Send a curriculum vitae and the names of three references to: S. P. Duckles, Department of Pharmacology, College of Medicine, University of California, Irvine, CA 92697-4265. E-mail: spduckle@uci.edu.

*APS Society Mixer
Saturday, March 31, 9:00 PM - 12 AM
Enjoy sumptuous desserts and
dance to the music of "Bunch of Cool Cats."
Peabody, Ballroom D*

Positions Available

Tenure-Track Faculty Pharmacology Position: The Department of Physiology of the Northeastern Ohio Universities College of Medicine (NEOUCOM) is seeking applicants to fill a tenure-track (assistant/associate professor level) position in cardiovascular or pulmonary pharmacology or physiology. The Department has a cardiopulmonary research focus and invites applicants who are using modern cellular and/or molecular biology techniques to address integrative physiological problems that complement ongoing research programs. Conveniently located near Akron, Youngstown, Canton, and Cleveland, NEOUCOM is a community-based state medical school offering a combined BS/MD program with the University of Akron, Kent State University, and Youngstown State University. Further information about the Department and Institution can be obtained from the NEOUCOM web site at <http://www.neoucom.edu>. Candidates must have a PhD and/or MD with appropriate postdoctoral fellowship training, a strong record of research accomplishment, and the ability to establish an independent

externally funded program. Excellent opportunities exist within the department and institution for collaboration. Medical student teaching responsibilities will be to participate in teaching the medical pharmacology course. Departmental faculty are members of the graduate faculty in programs leading to the PhD through the School of Biomedical Sciences at Kent State University. The successful candidate will have the opportunity to develop graduate courses that relate to his/her specialty. To apply, candidates should send a letter of application describing research experience and goals, accompanied by a curriculum vitae, and the names and addresses of three references to Human Resources: c/o Michael B. Maron, PhD, Professor and Chairperson, Department of Physiology, Northeastern Ohio Universities College of Medicine, PO Box 95, Rootstown, OH 44272-0095. Review of applications will commence March 9, 2001 and continue until the position is filled. [AA/EOE]

APS Sustaining Associate Members



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

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Book Review

Sound

Patricia Kruth and Henry Stobart
New York: Cambridge University Press,
2000, 235 pp., illus., index, \$34.95.
ISBN: 0-521-57209-6

The psychophysicist Hermann Helmholtz began his classic *On The Sensations of Tone* with a lofty goal in mind: to finally bridge the gap between the science of physical and physiological acoustics and the philosophy of music and aesthetics. Helmholtz was well aware of the difficulties of this task: “The horizons of physics, philosophy, and art have of late been too widely separated, and, as a consequence, the language, the methods, and the aims of any one of these studies present a certain amount of difficulty for the student of any other of them.” Although the collection of essays in *Sound* was not intended to resolve these timeless difficulties, it nonetheless provides a wonderful glimpse of the world of sound from a variety of perspectives.

The nine essays were presented by biologists, musicians, physicists, acousticians, and historians at the renowned “Darwin College Lectures,” a series of public seminars organized by Darwin College in Cambridge. The book tackles both silence (Philip Peek) and vocal communication (Peter Slater on birdsong and Peter Ladefoged on speech). It touches upon the physical properties of sound (Charles Taylor) and its perception (Jonathan Ashmore). The collection then turns to the theme of music, exploring musical evolution (Christopher Page and Brian Ferneyhough), cultural variation in music (Steven Feld), and even the marriage of sound and image in film (Michel Chion). With such a breadth of topics, the book provides an informative, accessible, and engaging perspective on the variety of approaches to the study of sound and the various ways sound pervades our life and the lives of those in other cultures.

If there is one underlying theme to emerge from this apparent smorgasbord of chapters, it would undoubtedly be that the quality and meaning of sound is in the ear of the beholder—be it bird or human, African or European, Medieval or Modern. Philip Peek’s chapter on silence, for example, provides a fascinating look at how different cultures appreciate the absence of sound. Throughout Africa, speechlessness is commonly understood to convey respect, discretion, knowledge and peace. The silence of an elder, for example, can effectively hush all social inferiors to effectively end proceedings. A person’s silence is also indicative of good composure and prudence. Conversely, in loquacious Western societies, talk is good and speechlessness can lead to the dreadful awkward silence. A defendant’s silence is often considered an admission of guilt, and the most talkative among us are considered the socially dominant individuals.

Another notable contribution is Christopher Page’s “Ancestral Voices,” which elegantly tackles the history of music and the evolution of musical instruments, specifically, the psaltery into the piano. One important myth, which the author debunks, is the notion that music has somehow progressively improved over the centuries. Page examines the historical context in which medieval music, in particular, was created and the ways in which musical qualities were valued then devalued. This ebb and flow shows that while music has certainly evolved, it has not been a progression to some idealized form. In this sense, the evolution of music is like the evolution of organic life—non-teleological. The appealing qualities of music are shaped by the culture and instruments of the time. The psaltery, for example, was made to accommodate longer strings for deeper pitches by sacrificing other sound qualities and became the harpsichord. The harpsichord naturally transmuted into

the piano, as we know it today. This shift in the size of this particular instrument reflects a cultural shift in the Early to Modern transition when there was much exploration of the lower pitches in music.

Though not catastrophic, there are some weak moments in the book. Jonathan Ashmore’s chapter entitled “Hearing” is really about just one part of the ear—the cochlea. The chapter suggests that we know nothing about the central auditory system or, at the behavioral level, how we perceive different sounds and how we locate them. However, modern neuroscience has shown that there are spectacular neural specializations for speech and music perception in humans, and for communication systems in other animals (e.g. birdsong). Charles Taylor’s chapter on “The Physics of Sound” is a nice overall review of different ways musical instruments produce sound, but he constantly refers to auditory demonstrations that presumably occurred during his lecture. As such, many readers will feel disconnected throughout much of the chapter. The editors could have made this chapter read more smoothly with some supplement to the text, perhaps a compact disc with demonstrations and examples from each of the chapters. Another minor annoyance is the lack of a bibliography. There were many points in the book where I would have liked to pursue a particularly interesting issue brought up by the author but could not do so because of the lack of references.

Despite its minor problems, *Sound* is a well-written, illuminating collection that Helmholtz himself would have applauded. This volume will be music to the ears of acoustic scientists searching for a broad, yet enlightening glimpse of the domain of sound.

Asif A. Ghazanfar
Harvard University

Book Review

Physiological Medicine: A Clinical Approach to Basic Medical Physiology.

Vishwanath R. Lingappa and Krista Farey. New York: McGraw-Hill, 2000, 1088 pp., illus., index, \$39.95. ISBN: 0-07-038128-3

Physiological medicine, a clinical approach to basic medical physiology is a valuable text for clinicians who completed their medical training, for residents in clinical specialties and for medical students especially as a complementary text, and for trainees in other health-related fields. The book is well written with excellent diagrams of key physiological mechanisms that are then linked with various aspects of clinical medicine. The bibliography is relatively up-to-date. The field of physiological medicine rapidly changes with new advances in understanding of pathophysiology of disease. Yet, in most chapters, the information appears to be up-to-date, probably more so than in traditional, larger clinical textbooks. The scope of the material covered in the 20 chapters and 905 pages is necessarily superficial as compared to textbooks that deal with specific organ systems, such as digestive diseases, cardiology, neurophysiology and neurology, etc. The 20 chapters include: Principles of Physiology and Medical Knowledge; Molecular Foundations of Physiology; Command and Control of Organ Systems; Liver Physiology; Gastrointestinal Physiology; Physiology of the

Endocrine Pancreas and Fuel Homeostasis; The Cardiovascular System; Respiratory Physiology; Renal Physiology; Fluid, Electrolyte, Acid-Base, and Blood Pressure Regulation; Physiology of the Hypothalamus and Pituitary; Physiology of the Thyroid Gland; Adrenal Physiology; Calcium and Mineral Metabolism; Physiology of the Male Reproductive System; Physiology of the Female Reproductive System; Physiology of Pregnancy, the Neonate, and Growth; Physiology of the Nervous System; Introduction to Host Defense; and Organ System Integration.

On the other hand, the book provides a more integrated view of pathophysiology of disease than would be available in a specialty textbook.

There are a few areas that would have enhanced the value of the book. Specifically, it is difficult to follow the different sections related to energy metabolism without having to read through chapters on the liver, digestive organs, pancreas and insulin. It would have been useful to include a better description of nutrients such as fat, carbohydrate, protein, etc. and their sources in the diet and then trace specific nutrients from digestion through their metabolism and then provide some description of the diseases specifically related to the various dietary sources and their metabolism.

There is a relative absence of a discussion of physiology of energy expenditure, how we measure "energy balance." The topic is covered to a limited

degree in the section on obesity. The chapter on female sex hormones would have been enhanced by a better discussion of hormonal changes at the menopause and a better description of post-menopausal physiological changes and their associated diseases. There is, however, a good description in the book of bone pathophysiology and the risk of osteoporosis. There is relatively little information in the book on the physiological changes associated with aging. A separate chapter on the physiology of aging would be useful given that the major burden of disease in the population occurs among older individuals. The book also would have benefited from some discussion of genetic variation in physiological responses and how they relate to "disease susceptibility." In summary, physiologic medicine is an extremely ambitious, well-written text. This book will be useful, as noted, for a medical students as well as for clinicians in practice and may be especially valuable as a text in courses for other health-related disciplines such as trainees in epidemiology, genetics, environmental health sciences, for graduate students in other basic sciences of medicine and health other than physiology. This obviously cannot replace textbooks which specifically focus on one or two organ systems or on specific pathophysiological processes, i.e., calcium, metabolism, cardiovascular disease, atherosclerosis, etc. ❖

Lewis H. Kuller
University of Pittsburgh

John F. Perkins Memorial Award

The John F. Perkins, Jr. Memorial Award promotes cultural and scientific benefits associated with the international aspects of physiology. The award provides supplementary aid to families of foreign scientists working in the US. In this way, young scientists are able to bring their families and, thus, make full use of the cultural, as well as the scientific, benefits associated with an international exchange. The program presupposes that the visiting scientist and his/her host already have made arrangements for scientific collaboration

and have sufficient funds to cover the needs of the visiting scientist.

Two to four awards are made each year. Applications for the Perkins Award must be made jointly by the host, who must be an APS member, and the visitor. The recipient receives funds generally not exceeding \$3,000. The size of the award depends on the estimated needs over and above the amount already available to the visiting scientist.

The **deadline** for applications is **May 15 and November 15**.

Book Review

Atlas of Functional Neuroanatomy

Walter J. Hendelman
Boca Raton, FL: CRC, 2000, 258 pg.,
illus., index, \$39.95.
ISBN: 0-8493-1177-2.

For the visually minded student of the neurosciences and medicine, this monograph should offer a useful introduction. Consonant with the current educational trends, it attempts to eliminate the details of neuroanatomy and to focus on what the author, an experienced teacher of the subject, considers the essentials.

The substantive material is divided into three parts: the first is an orientation and description of the main parts of the spinal cord and brain; the second is an illustrative guide through the relations of certain ones of these parts in the sensory and motor systems; the third is a regrouping of the structures put to service in clinical neurology. Naturally, one can find some degree of overlap and inconsistency in the separation of the three sections.

The anatomical displays combine photographs of the spinal cord and brain with caricatures of the more

important of these structure and with CT and MRI scans. This component of the monograph is commendable. The functional aspects of neuroanatomy and the systems which they form suffer from a paucity of detail. The glossary at the end should be useful.

If this atlas were to serve as an orientation to neurological medicine, it would need the elaboration of an experienced instructor. For the prospective neuroscientist, it should be more valuable. ❖

Raymond D. Adams
Massachusetts General Hospital

Books Received

Animal Experimentation: A Guide to the Issues.

Vaughan Monamy.
New York: Cambridge Univ. Press,
2000, 110 pp., index, \$15.95.
ISBN: 0-521-66786-0.

The Development of Sarcoplasmic Reticulum.

Anthony N. Martonosi.
Newark, NJ: Harwood, 2000, 622 pp.,
index, \$118.00.
ISBN: 90-5702-602-3.

The Horizontal Gene Pool.

Christopher M. Thomas (Editor).
Newark, NJ: Harwood, 2000, 420 pp.,
index, \$110.00.
ISBN: 90-5702-462-4.

Human Paleobiology.

Robert B. Eckhardt.
New York: Cambridge Univ. Press,
2000, 350 pp., index, \$80.00.
ISBN: 0-521-45160-4.

Illustrated Principles of Exercise Physiology.

Kenneth Axen and Kathleen Vermitsky Axen.
Upper Saddle River, NJ: Prentice-Hall,
2001, 306 pp., table of contents,
\$20.00.
ISBN: 0-13-040022-X.

Intestinal Lipid Metabolism.

Charles M. Mansbach II, Patrick Tso,
and Arnis Kuksis (Editors).
New York: Kluwer Academic/Plenum,
2001, 434 pp., index, \$135.00.
ISBN: 0-306-46241-9.

LabView: Data Acquisition & Analysis for the Movement Sciences.

Andrew L. McDonough.
Upper Saddle River, NJ: Prentice Hall,
2001, 238 pp., illus., index, \$64.00.
ISBN: 0-13-012847-3.

Muscle Development and Growth.

Ian A. Johnston (Editor).
Fish Physiology Series, Vol. 18.
New York: Academic, 2001, 318 pp.,
illus., index, \$99.95.
ISBN: 0-12-350442-2.

Neural Prostheses for Restoration of Sensory and Motor Function.

John K. Chapin and Karen A. Moxon
(Editors). *Methods & New Frontiers in Neuroscience Series.*
Boca Raton, FL: CRC, 2001, 296 pp.,
illus., index, \$99.95.
ISBN: 0-8493-2225-1.

Noninvasive Positive Pressure Ventilation: Principles and Applications.

Nicholas S. Hill, (Editor).
Amonk, NY: Futura, 2000, 256 pp.,

illus., index, \$70.00.
ISBN: 0-87993-459-X.

Physics for the Biological Sciences: A Topical Approach to Biophysical Concepts, 3rd Edition.

F.R. Hallett, J.L. Hunt, E.L. McFarland, G.H. Renninger, R.H. Stinson, and D.E. Sullivan.
Toronto: Harcourt Canada, 2001, 548
pp., \$72.95.
ISBN: 0-7747-3728-X.

Primary Pediatric Pulmonology.

Allen J. Dozor.
Armonk, NY: Futura, 2000, 304 pp.,
illus., index, \$88.00.
ISBN: 0-87993-464-6.

The Osteoporosis Primer.

Janet E. Henderson and David Goltzman (Editors).
New York: Cambridge Univ. Press,
2000, 372 pp., illus., index, \$64.95.
ISBN: 0-521-64446-1.

Shape and Structure, From Engineering To Nature.

Adrian Bejan.
New York: Cambridge Univ. Press,
2000, 324 pp., \$39.95.
ISBN: 0-521-79388-2.

Obituary

Donald Jeffrey Reis 1931-2000

Donald Jeffrey Reis, Professor of Neurology at Cornell University Weill Medical College, died after a long illness on November 1, 2000. With his passing, the American Physiological Society lost a longstanding member and friend. For nearly forty years Don enriched our scientific environment with stimulating ideas and challenged us at meetings with insightful questions. Through his Laboratory of Neurobiology at Cornell he provided the rich milieu through which many young and aspiring academic scientists would pass. But just being in Don's company made for a rich milieu. His will truly be a lasting legacy. He left behind a devoted wife Cornelia and family as well as an extended family consisting of a world of friends. He had many facets, too many for this tribute to do justice in this space. I will touch but briefly on a few and mention only a few of the many individuals whose work with Don contributed to his impact. To the innumerable contributors whose names I don't mention I apologize, but one and all you are honored in this tribute to Don.

Musician and Entertainer: Before he did any of the things for which most will remember him, Don was a musician, a gifted pianist. I had heard Don play many times and recognized his talent, but I did not realize until the memorial service held in his honor on November 17, 2000, that he had composed music for the piano. One of his compositions, played at the service, made it clear that this young composer could bring his great sense of expression to music much as he did in his contacts with friends. I also learned that Don's ability to regale audiences with his humorous tales was a lifelong trait. He was apparently known as a great entertainer, musical improvisator, and stage presence while an undergraduate student at Cornell. His band of like-minded students was a group from



Donald J. Reis

which student housing may not, even now, have recovered. He never strayed all that far from his music and even brought a piano, discarded on a New York City street, into the lab for our (and his) occasional entertainment. Music certainly provided a soothing influence there. As we in that lab enjoyed the company of some fifty scientists who worked so closely together, Don used to tell me that the best training for his job as lab director might have been under the impresario of the Metropolitan Opera: something to do with prima donnas. Despite his love for music Don felt that he could make a greater impact on the world through his science. As I was to find, he was almost always right. Clearly the loss to music was a gain to science. Fortunately he never lost his ability to entertain so that a scientific presentation by Reis was a joy even to those who didn't understand all the subject matter.

Physician: Don and I first met in 1974 during my first year in the Cornell Neurology resident training program and his eleventh year there. We met because the professional Don was first a neurologist. He attended in the care of patients at New York Hospital at that time and brought to attending rounds at the bedside something rather remark-

able. It became immediately clear that his own neurological training under the influence of Denny Brown and Harold Wolf had created a neurologist with great clinical gifts. His diagnostic skills and his movements toward therapeutic judgement were done with such facility that we young trainees were often left scratching our heads how this lab doctor could be so quick. It also soon became clear that he applied the scientific method in clinical diagnosis. That he could so effectively merge his scientific discipline and clinical skills was one of the great lessons learned on rounds with him. He remains a role model as we seek to encourage more young physicians to enter the field of science and contribute in their own way to scientific discovery.

Teacher and Mentor: Role models have a tendency to teach by example and Don was no exception. It was during his teaching rounds that I first saw how he observed at the bedside, analyzed what was not known about the biology of a patient's condition, and began to develop hypotheses that could then be taken to the lab. One particular rounds stands out because it stimulated my entering a field that had been foreign to me before I met Don. On that occasion, while discussing a patient with orthostatic hypotension, Don gave us a summary of then current knowledge of cardiovascular reflex control. As he proceeded, his enthusiasm for the topic became contagious and the map he drew of central reflex circuitry came alive. A year later as I sought his counsel about my desire to enter a scientific career, that discussion was still fresh in my mind. His way of helping me find my way into a lab was not by giving directions but instead by allowing me to find my own direction. When he asked what was the thing that had heightened my enthusiasm the most during my medical training, I immediately related

Obituary

how those significant rounds had excited me. He not only offered to have me join his lab, but he also saw to it that I would work with just the right people to provide for my growth. Of course, my experience was not unique. It replayed itself time and again with others who entered the Laboratory of Neurobiology and led many to think of Don as their scientific father, a title that particularly made him cringe.

Ever Inquisitive Scientist: Even as a medical student at Cornell Medical College, Don began to bloom as a productive scientist who took advantage of every opportunity to broaden the scope of his investigation. One of his first publications dealt with a cutaneous reflex, the palmomental reflex, often tested by neurologists at the time. But his paper went beyond a simple description of the reflex and established the sites in the brain from which the reflex arose. In honing his skills he worked at UCLA with Magoun, at the NIH with MacLean and Axelrod, at the Karolinska Institute with Kugelberg and Granit, at Chiba University with Homma, and at the National Hospital at Queens Square with Blackwood. In 1963 he returned to Cornell to join the Department of Neurology being molded by Fred Plum. There, with Plum and Posner, he participated in developing a neurological program whose emphasis was not the descriptive neurology of the past but a dynamic neurology with great emphasis, from bedside to bench, on normal physiology and pathophysiology. His reputation as a scientist in that program quickly passed from intramural to extramural to international and he began the

influence that has meant so much to students of central autonomic control and cardiovascular physiology. His work with Nobutaka Doba and Wayne Crill put the nucleus tractus solitarius (NTS) on the cardiovascular physiologists' map and his later work with Chris Ross and David Ruggiero established the importance of the rostral ventrolateral medulla in sympathetic control. The NTS work made the possibility of "neurogenic hypertension" a reality as did his subsequent work with Miura, Hoff, Dampney, Kumada, and Doba in describing central mechanisms of the Cushing Response and regions of the brain stem where application of slight pressure or hypoxia led to increased blood pressure. With Snyder and Nathan he described disturbances in blood pressure regulation with central lesions but also contributed to our understanding of the integration of cardiovascular control with behavior, a theme that he addressed repeatedly with Joseph LeDoux. His efforts to understand the pharmacology of central reflex control led to contributions on transmitters in all of the systems he studied. As was typical of most of his studies, he used multidisciplinary approaches to address each question. Often his contribution to the finished product surpassed the scientific and led to new terms such as "suicide transport" that he coined with Wiley in their first work describing cellular effects of toxic lectins. New avenues of study began to emerge through collaborations with Virginia Pickel in immunohistochemistry and Tong Joh in neurochemistry. With them, the integration theme could

be taken to the cellular level, but it would appear in further systemic studies like those performed by Blessing and Sved, who, while working in Don's lab, demonstrated integration of neuroendocrine and sympathetic control through the caudal ventrolateral medulla and began studies that would lead to our current understanding of the baroreflex arc.

As can be seen with a look at the composite of his studies, Don's approach was not to study mechanisms of isolated phenomena. The body of his work sheds light on his belief that the brain has the capacity to regulate not only peripheral circulation but also its own blood flow. Considering the diving reflex, Don hypothesized that the brain could also provide some protection for itself from damaging effects of ischemia and he began to seek a putative central oxygen sensor. From those hypotheses grew his work with Doba, Nakai, Iadecola, and Golanov who showed the influence of the fastigial nucleus of the cerebellum on peripheral and central circulation and the influence of central neurons on brain damage following ischemia. It was toward these latter studies that Don was working at the time of his death.

The impact that Don Reis had on the field of cardiovascular physiology is indeed profound and widely acknowledged amongst APS. Therefore, with a desire to develop a perpetual memorial to Don, the APS has announced a campaign to develop a fund that will endow a lectureship and award program to be presented annually at the Experimental Biology meeting. ❖

Donald J. Reis Memorial Fund to be Established

The Neural Control and Autonomic Regulation, Central Nervous System, and Cardiovascular Sections of APS have begun a drive to establish a perpetual memorial for Donald Reis. Reis has made lasting contributions to cardiovascular physiology and neurophysiology and has had a significant impact on the careers of many APS members. His legacy of outstanding research, teaching and leadership deserves recognition. With the concurrence of Reis's wife Cornelia, we would like to initiate a fundraising campaign to support

an APS endowed lectureship or annual award to be presented at the Experimental Biology Meeting. Contributions can be sent to the Donald J. Reis Memorial Fund, c/o The American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991. Those seeking further information may contact Martin Frank at mfrank@aps.faseb.org, Jeanne Seagard at jseagard@mcw.edu, Susan Barman at barman@pilot.msu.edu, or Kathleen Berecek at berecek@uab.edu.

Simon Receives Japanese Award

On November 3, 2000, the Prime Minister of Japan, on behalf of the Emperor of Japan and at the behest of the Japanese Ministry of Culture, decorated APS member **Eckhart Simon**, the Experimental Biology 2000 Distinguished Lecturer of the Environmental and Exercise Physiology Section with the Order of the Rising Sun, Gold Rays with Neck Ribbon. This is Class 3 of the oldest Japanese order of merit; there are eight classes of this award. Hence, this decoration is very prestigious, indeed. This recognition involved various post-



Eckhart Simon

decoration ceremonies, including participation in a formal and solemn audience with the Emperor himself.

The award was made in appreciation of Simon's mentoring of a large number of Japanese postdocs over the 35 years of his active career, such that he has had a profound impact on Japanese physiology, particularly in the areas of environmental and thermal physiology and in the neuroendocrinology of body fluid balance, his main interests. His collaborations with his former pupils continue, in many cases, to this day. ❖

Lindsey Named Interim Vice President for Research at University of South Florida

Bruce Lindsey, chair of physiology and biophysics at the University of South Florida (USF), has been appointed interim vice president for research at the school. USF President Judy Genshaft said she is confident Lindsey

will help USF's research department maintain a good name. "Dr. Lindsey is an excellent researcher and a very able administrator," Genshaft said in a statement. "I know we will continue to have a great performance in research."

Lindsey was part of the founding group of USF's neuroscience program. He also was chairman for the committee that established a doctoral program in the department of neuroscience.

Accepting a position with the Department of Biology, University of William Jewell College, Liberty, MO, **Tara Jeffrey Allen** has moved from the Department of Physiology, University of Missouri, Columbia, MO.

A. Vania Apkarian has joined the Department of Physiology, Northwestern University, Chicago, IL. Prior to his new position, Apkarian was with the Neurosurgery Research Laboratory, SUNY Health Science Center, Syracuse, NY.

Bork Balkan has accepted a position with the Institute for Diabetes Discovery, Branford, CT. Balkan was previously associated with the Novartis Pharmaceuticals Corporation, Summit, NJ.

Joining the Department of Pharmacology & Toxicology, University of Utah, Salt Lake City, UT, **Steven L. Bealer** has moved from the Department of Physiology & Biophysics, University of Tennessee Health Science Center, Memphis, TN.

Scott Hayden Carlson is currently with the Department of Biology, Luther College, Decorah, IA. Previously, Carlson was with the Department of Vascular Biology and Hypertension, University of Alabama, Birmingham, AL.

Moving from the WIC Nutrition Program, Amarillo, TX, **Edgar Lichar Dillon** has joined the Nutritional Biochemistry Laboratory, NASA Johnson Space Center, Houston, TX.

Paul Fadel has joined the Division of Hypertension, University of Texas Southwestern Medical Center, Dallas, TX. Fadel was previously with the Department of Integrative Physiology, University of North Texas, Ft. Worth, TX.

Accepting a position with the Department of Anatomy, Physiology, and Pharmacology, Auburn University School of Veterinary Medicine, Auburn, AL, **Mary F. Forman** has moved from the Poultry Science Center, University of Arkansas, Fayetteville, AR.

Accepting a position with the Department of Medicine and Nephrology, Mayo Clinic, Rochester, MN, **Eddie Leon Greene** has moved from the Department of Medicine and Section of Nephrology, Medical University South Carolina, Charleston, SC.

Accepting a position with Entelos Inc., Randolph, NJ, **Mary Hastings Hager** is no longer with the College of St. Elizabeth, Morristown, NJ.

Jong-sik Hah has joined the Department of Physiology, Ewha Womans University College of Medicine, Seoul, Korea. Hah was on sabbatical leave at the Department of Physiology & Biophysics, State University of New York at Buffalo, NY.

Formerly with the Department of Pediatric Surgery, Mott Children's Hospital, University of Michigan, Ann Arbor, MI, **Carroll McWilliams Harmon** has joined the Department of Pediatric Surgery, University of Alabama, Birmingham, AL.

People & Places

Joining the Department of Toxicology, Covance Laboratories Inc., Madison, WI, **Jay K. Herman** has moved from the Department of Comparative Bioscience, University of Wisconsin, Madison, Wisconsin.

Karl G. Hofbauer is now the Chair of Applied Pharmacology, Departments of Pharmacology and Biology, University of Basel, Basel Switzerland. Prior to his new position, Hofbauer was Head of Cardiovascular Biology Research, Ciba-Geigy Ltd., Basel, Switzerland.

Armin Just has accepted an appointment with the Department of Cell and Molecular Physiology, University of North Carolina, Chapel Hill, NC. Prior to his new assignment, he was with the Institute of Physiology and Pathophysiology, Heidelberg, Germany.

Joining the Division of Nephrology and Medicine as Instructor in Medicine, Ramathibodi Hospital, Bangkok, Thailand, **Chagriya Kitiyakara** has left the Division of Nephrology and Medicine, Georgetown University Medical Center, Washington, DC.

Michael T. C. Liang has affiliated with Kinesiology and Health Promotion, California State Polytechnic University, Pomona, CA. Previously, Liang was with the Division of Kinesiology, Bowling Green State University, Bowling Green, OH.

Recently, **Michael A. Linshaw** joined the Department of Pediatrics Nephrology, Massachusetts General Hospital, Boston, MA. Previously, Linshaw was with the Department of Pediatrics Nephrology, New England Medical Center, Boston, MA.

Having accepted a position with the Department of Physiology, Wakayama Medical University, Wakayama City, Japan, **Masanobu Maeda** has moved from the Department of Systems

Physiology, Institute of Industrial Ecological Sciences, University of Occupational and Environmental Health, Kitakyushu, Japan.

Accepting a position with the Department of Exercise and Sport Science, The University of Utah, Salt Lake City, UT, **James Charles Martin** has moved from the Department of Exercise Science, University of South Carolina, Columbia, SC.

Kevin D. Monahan has joined the Department of Medicine, Pennsylvania State University College of Medicine, Hershey, PA. Prior to his new appointment, Monahan was with the Department of Kinesiology, University of Colorado, Boulder, CO.

Randall Kent Packer has joined the Department of Biological Science, George Washington University, Washington, DC. Prior to his new appointment, Packer was Vice President, Academic Affairs, Moravian College, Bethlehem, PA.

Formerly with the Biomedical Engineering Program, Pennsylvania State University, University Park, PA, **Kaushik Parthasarathi** has joined the Department of Physiology and Cellular Biophysics, Columbia University, New York, NY.

Siriwan Prapong has joined the Department of Veterinary Physiology, College of Veterinary Medicine, Kasetsart University, Bangkok, Thailand, Having moved to Bangkok from the Department of Biomedical Science, Iowa State University College of Veterinary Medicine, Ames, IA.

Diane Carla Rein recently affiliated with BioComm Consultants, Cincinnati, OH. Prior to her new position, Rein was with the Department of Biological Sciences, University of Cincinnati, Cincinnati, OH.

Accepting a position with the Department of Kinesiology & Applied Physiology, Neural Control of Movement Laboratory, University of Colorado, Boulder, CO, **Minoru Shinohara** was with the Department of Life Science, Lab Sports Science, University of Tokyo, Tokyo, Japan.

Having joined the Department of Biomedical Research, Navy Experimental Diving Unit, Panama City, FL, **Barbara E. Shykoff** recently moved from the Department of Medicine, Millard Fillmore Hospital, Buffalo, NY.

Richard A. Steinbrook has accepted a position with the Department of Anesthesia and Critical Care, Beth Israel Deaconess Medical Center, Boston, MA. Prior to his new position, Steinbrook was with the Department of Anesthesia, Brigham & Women's Hospital, Boston, MA.

Joining the Eli Lilly Australia Party Ltd, Macquarie Park, Australia, **Jodie Maree Stocks** has left the School of Human Movement, Australian Catholic University, North Sydney, Australia.

Linda S. Tompkins has accepted a position with the Department of Basic Research, The Parkinson's Institute, Sunnyvale, CA. Formerly, Tompkins was with the Department of Physiology, University of Arizona, Tucson, AZ.

Mary H. Van Soeren recently moved from the Intensive Care Unit, St. Joseph's Health Center, London, Ontario, Canada, to the Guelph General Hospital Administration, Guelph, Ontario, Canada.

Announcements

COSEPUP Releases Guide for Postdocs

The Committee on Science, Engineering and Public Policy (COSEPUP), a joint committee of the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine has issued a *Guide to Enhancing the Postdoctoral Experience for Scientists and Engineers*. The guide “offers its assessment of the postdoctoral experience and provides principles and recommendations for enhancing it.”

The full text of the *Guide* is available at COSEPUP's Webguide to Enhancing the Postdoctoral Experience for Scientists and Engineers at <http://www.nationalacademies.org/postdocs>.

New NIGMS Brochures Available

The National Institute of General Medicine Sciences has published two new brochures.

The Chemistry of Health describes how basic chemistry and biochemistry research can spur a better understanding of human health.

Scientists for the 21st Century: Biomedical Research and Training Opportunities for Minorities describes NIGMS' research and research training programs designed to increase the number of minority biomedical scientists.

Contact the institute to obtain either brochure. Both publications will also be available on their website at http://www.nigms.nih.gov/about_nigms.

ACLAM Foundation Request for Proposals Available

The updated Request for Proposals is available on the American College of Laboratory Animal Medicine web site at www.aclam.org. You are encouraged to apply for a grant of up to \$20,000.

Through awarding high quality research grants, the ACLAM Foundation is working to expand the body of knowledge in the fields of laboratory animal science and medicine. Please take time to visit the web site and learn about past Foundation grants. The eight grants awarded this year are:

- 1) Development of Long-Acting Analgesics for Relief of Postoperative Pain in Rodents
- 2) Analgesic Efficacy of Oral Buprenorphine in Rats
- 3) The Effects of Environmental Enrichment on Murine Immune Responses
- 4) Well-Being of Rabbits Immunized with Freund's Complete Adjuvant
- 5) The Spacing Behavior and Social Preferences of Laboratory Rabbits
- 6) Surveillance of *Coxiella burnetii* Infection in Sheep: Detection of Shedders by DNA Amplification Using Polymerase Chain Reaction
- 7) Determination of Shedding Frequency of B Virus in Pair-Housed Rhesus Macaques
- 8) Development of a Recombinant Antigen-Based Immunoassay for Mouse T Lymphotropic Virus

Deadlines! Deadlines!

The APS sponsored awards are plentiful, but in order to be considered, don't forget to submit the application information before the deadline!

Award

John F. Perkins, Jr., Memorial Fellowships
William T. Porter Fellowship Award
Research Career Enhancement Awards
Teaching Career Enhancement Awards
Shih-Chun Wang Young Investigator Award
Arthur C. Guyton Awards in Integrative Physiology
Giles F. Filley Memorial Awards for Excellence in
Respiratory Physiology and Medicine
Lazaro J. Mandel Young Investigator Award
Procter & Gamble Professional Opportunity Awards
Caroline tum Suden/Francis A. Hellebrandt
Professional Opportunity Awards

Next Deadline

May 15
July 15
October 15
October 15
November 1
November 1
November 1
November 6
November 6
November 6

Scientific Meetings and Congresses

February 15-18

17th Computed Body Tomography 2001: The Cutting Edge, Orlando, FL. *Information:* Office of Continuing Medical Education, Johns Hopkins University School of Medicine, Turner 20, 720 Rutland Avenue, Baltimore, MD 21205. Tel: 410-955-2939; fax: 410-955-0807; email: cmenet@jhmi.edu; Internet: <http://www.med.jhu.edu/cme>.

February 17-21

Biophysical Society 45th Annual Meeting, Boston, MA. *Information:* Biophysical Society Office, 9650 Rockville Pike, Bethesda, MD 20814. Tel: 301-530-7114; fax: 301-530-7133; email: society@biophysics.faseb.org; Internet: <http://www.biophysics.org/biophysics/society/annmtg/>.

February 17-23

SPIE's International Symposium on Medical Imaging, San Diego, CA. *Information:* Society of Photo-Optical Instrumentation Engineers, PO Box 10, Bellingham, WA 98227-0010. Tel: 360-676-3290; fax: 360-647-1445; email: spiecall@spie.org; Internet: <http://www.spie.org/info/mi>.

March 3-9

Genome 2001 Tri-Conference, San Francisco, CA. *Information:* Cambridge Healthtech Institute, 1037 Chestnut Street, Newton Upper Falls, MA 02464. Tel: 617-630-1300 or 888-999-6288; fax: 617-630-1325; email: chi@healthtech.com; Internet: <http://www.healthtech.com>.

March 21-24

Heart and Brain: 5th International Conference on Stroke and 2nd Conference of the Mediterranean Stroke Society, Istanbul, Turkey. *Information:* Stroke 5 Conference, c/o Kenes International-Professional Congress Organizers (PCO) and International Association Management, PO Box 50006, Tel Aviv 61500, Israel. Tel: +972-3-5140018/9; fax: +972-3-5172484 or +972-3-5140077; email: stroke5@kenes.com; Internet: <http://www.kenes.com/stroke5>.

March 30

Cerebrovascular Topics at Johns Hopkins: Focus on Acute Stroke Therapies, Baltimore, MD. *Information:* Johns Hopkins University School of Medicine, Office of Continuing Medical Education, Turner 20, 720 Rutland Avenue, Baltimore MD 21205. Tel: 410-955-2959; fax: 410-955-0807; email: cmenet@jhmi.edu; Internet: <http://www.med.jhu.edu/cme>.

March 30-31

ASPET Colloquim: G Protein Coupled Receptors, Orlando, FL. *Information:* ASPET, 9650 Rockville Pike, Bethesda, MD 20814. Internet: http://www.faseb.org/aspet/GPRC_Program.html#top.

April 22-27

22nd Annual International Society for Gravitational Physiology Meeting, Budapest, Hungary. *Information:* Professor Laszlo Simon, President of ISGP, simon@ana.sote.hu; or Dr. Peter Norsk, Chairman of ISGP Council of Trustees, pnorsk.damec@post.uni2.dk; Internet: <http://www.isgp.org>.

April 22-26

11th International Conference Second Messengers and Phosphoproteins, Melbourne, Australia. *Information:* Email: admin@secondmessengers.com; Internet: <http://www.secondmessengers.com>.

May 2-4

3rd Annual Samuel A. Latt/Motown microarray Meeting: Genomics and Proteomics in Cancer, Detroit, MI *Information:* Dr. Alexander Nakeff, Josephine Ford Cancer Center, Henry Ford Health System, One Ford Place, Detroit, MI 48202. Tel: 313/874-4879; fax: 313/874-6824; email: anakeff1@hfhs.org; Internet: <http://www.samlatt.org>.

May 6-8

Spinal Cord Trauma: Neural Repair and Functional Recovery, Montreal, Canada. *Information:* Ms. Chantal Nault. Tel: 514-343-6366; fax: 514-343-6113; email: chantal.nault@umontreal.ca; Internet: <http://www.crsn.umontreal.ca/XXIIIs>.

May 16-19

Psychoneuroimmunology: Molecules to Disease Models (9th International Meeting), Utrecht, The Netherlands *Information:* The Psychoneuroimmunology Research Society. Email: pnirs@pnirs.org; Internet: <http://www.PNIRS.org>.

June 4-7

Critical Issues in Tumor Microcirculation, Angiogenesis and Metastasis: Biological Significance and Clinical Relevance (Sixteenth Annual Offering), Boston, MA. *Information:* Harvard Medical School and Massachusetts General Hospital. Internet: <http://steele.mgh.harvard.edu>.

June 13-16

NephroAsia 2001: Conquering Current Challenges in Nephrology (International Meeting of National Kidney Foundation of Singapore, American Society of Nephrology, and American Nephrology Nurses' Association), Singapore. *Information:* National Kidney Foundation of Singapore. Tel: +65-299-0200; fax: +65-299-3164; email: nephroasia@nkfs.org; Internet: <http://www.nephroasia.com>.



MEMBERSHIP APPLICATION FORM

THE AMERICAN PHYSIOLOGICAL SOCIETY

Tphys2.01

Check membership category you are applying for: Regular Affiliate Student

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If you answered yes to above, what is your category of Membership? _____ Year elected? _____

Name of Applicant: _____ / _____ / _____
Last Name or Family Name First Name Middle Name

Date of Birth _____ / _____ / _____ Optional: Male Female
Month Day Year

Institution Name _____ Department _____

Institution Street Address _____

City/State/Zip/Country _____

Phone _____ Fax _____

E-mail _____

EDUCATIONAL STATUS *(Important: if you are enrolled as a student, include the degree and pending date of completion)

Dates*	Degree*	Institution	Major Field	Advisor
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DOCTORAL DISSERTATION TITLE (if applicable): _____

POSTDOCTORAL RESEARCH TOPIC (if applicable): _____

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Check this box if applicable: Please locate sponsors on my behalf.

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**signature indicates that sponsor attests applicant is qualified for membership.*

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OCCUPATIONAL HISTORY [Check if student]

Current Position:

Dates	Title	Institution	Department	Supervisor
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Prior Positions:

Dates	Title	Institution	Department	Supervisor
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LIST YOUR PUBLICATIONS FROM THE PAST 5 YEARS (List them in the same style as sample below).

Sample: Cheung, Stephen S., and Tom M. McLellan. Heat acclimation, aerobic fitness, and hydration effects on tolerance during uncompensable heat stress. *J. Appl. Physiol.* 84(5): 1731-1739, 1998.

IMPORTANT INFORMATION:

Do not include a curriculum vitae or reprints.

Mail your application to: Membership Services Department, The American Physiological Society
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