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breaking abstract
deadline!
February 14, 2001!



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The Physiologist

Volume 43, Number 6

December 2000

Response to the Hiatt Report of NRC “Bullish on Biomedical Science”

Gilbert Hageman

University of Alabama at Birmingham

The Report of the National Research Council entitled “Addressing the Nation’s Changing Needs for Biomedical and Behavioral Scientists” (National Academy Press, Washington, DC 2000) is a thoughtful analysis of the workforce needs of the Biomedical Community in the United States (http://grants.nih.gov/training/nas_report/index.htm). The members of the Committee, chaired by Professor Howard Hiatt of Harvard Medical School, are respected authorities in their fields. The Committee did a great job of identifying areas that need attention. However, in my opinion, the Committee did not fully recognize all the possible scenarios for future needs.

I agree with the Committee that there are sufficient numbers of PhD scientists in the biomedical sciences to meet today’s needs. There even appears to be a surplus of domestic postdoctoral fellows who are unable to find tenure-earning faculty positions. If, however, there is a true “surplus,” why do so many American graduate programs and research laboratories continue to invite international students and scholars to join their laboratories? I welcome the immigration of the international scientists to America, and I shudder to think where we would be today without these scientists. These students and scholars come to America to learn, train, and perform good biomedical science without consideration of a future tenure-earning faculty position. Many, but not all, of these international trainees, return to their native countries. Most of the faculty positions with tenure in the academic medical centers of the United States (which are still under severe financial pressures from govern-

ment policy and HMOs) are occupied by the baby-boomer generation (at least for a few more years). Recently, the United States Senate, after hearing testimony from the leaders of the American business community, voted overwhelmingly to significantly increase the number of H-1B visas to internationals with technical talents needed by American industry. Do we have too many or too few biomedical scientists, as evidenced by our immigration practices and policies?

I agree with the Committee that there are too few biomedical scientists from under-represented minority communities. This problem has been recognized for more than a decade. Numerous GREAT Conferences of the AAMC have discussed this problem and possible solutions. But despite the long and hard efforts of many of us, the numbers of graduate students, postdoctoral fellows, and faculty from under-represented populations remains a serious problem in search of new ideas and approaches.

I am uncertain as to the need for more biomedical scientists with MD degrees for clinical and patient-oriented research. While it is true that fewer scientists with MD degrees are receiving R-01 grants from the National Institutes of Health, the K-23, K-24, and K-30 mechanisms designed to address this problem are too new for analysis of results. In a few years we shall know if these initiatives were successful. At some universities most of the clinical/patient-oriented research seems to be supported, not by the NIH R-01 mechanism, but by the pharmaceuti-

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Response to the Hiatt Report of NRC

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cal/technology companies and the non-profits. Grants from these sources are probably more attractive because the Federal Government restricts salary reimbursement from the project in ways other sources do not. We seem to be performing more research involving patients than ever before, but with fewer NIH-sponsored investigators with MD degrees. A policy change at NIH to allow debt forgiveness for clinical researchers with the MD degree will make this career choice much more attractive for many medical students and residents. I believe that it is too early to tell if the total numbers of MDs in biomedical research have fallen or not.

I agree with the Committee's recommendation that more resources be directed to the NRSA training grants. Without question the NRSA program has been a huge success. Analysis by NIH indicates that these training grants attract the best students, provide the best training opportunities, and position their graduates into more successful careers. It should be remembered that those not supported by an NRSA training grant often receive the benefits of these programs at their institutions. The NRSA program versus the research grant training mechanism was once a 50-50 split. Today the research grant

supports twice as many students as the NRSA program. Returning to the 50-50 balance will take time and money. More importantly than the source of the funding is the unfairness (real or perceived) at some institutions between those on the training grant and those on the research grant. Graduate students must all be treated as first class citizens, regardless of funding sources. Predoctoral students must be encouraged and helped to earn their degree in a more reasonable (shorter) time frame. Postdoctoral trainees must be given attractive salaries and granted full benefits (similar to those given to all other support personnel at your institution). If we cannot treat postdoctoral fellows any better than migrant workers, because of their training status, perhaps its time to make them all research associates who might enjoy the full benefits of employment. A policy change at NIH to limit PHS support for postdoctoral fellows to five years is a step in the right direction.

Finally, I disagree with the Committee's recommendation about the future need for biomedical scientists. We in graduate education and training must gear up to greatly increase our number of trainees within the next several years. A change in NIH policy to actually count and track trainees paid from research grants will improve our

data about the number and location of our trainees. We will need these bright, new scientists for three reasons. First is the doubling of the NIH budget (which will stimulate more, not fewer, research opportunities). Second is the explosion of information in genomics which will require more (not fewer) biomedical scientists who must then advance into proteomics and functional genomics. Third is the inevitable retirement and death of the baby-boomers, the largest cohort of biomedical scientists in history. In my opinion, this '60's generation, which endured the Viet Nam War, will not stay in the laboratory for much longer. This generation will choose to collect their early retirements and do something else. Informal surveys at several biomedical departments predict a doubling of the normal retirement rate within the next five years. Appendix D of the Report is an excellent analysis of demographic projections of the PhD workforce. However Figures D-9 and D-10, which estimate the proportion of retirees in two years and the workforce projections through the year 2005, respectively, fail to predict the needs for 2010. Training an independent scientist takes five to 10 years, so we better begin tomorrow. I ask the Committee, when would you suggest that we begin to train the replacements? ❖

Human Genome Sequence Now Available

NIH has asked us to inform our membership that the public working draft version of the sequence of the human genome is now available. The following links will take investigators directly to three complementary (but unique) assembled views of the human genome, together with useful browsing tools providing a wide variety of annotations of the sequence.

These sites are being updated almost continually.

University of California at Santa Cruz

<http://genome.ucsc.edu/>

National Center for Biotechnology Information (NCBI)

<http://www.ncbi.nlm.nih.gov/genome/guide/> and click "Map Viewer"

European Bioinformatics Institute (EBI)

<http://www.ensembl.org/>

Frontiers in Physiology:

A Joint Meeting of the Scandinavian and American Physiological Societies

In the late summer, scientists and students representing the American Physiological Society, the Scandinavian Physiological Society, and the European community met in the city known for recognizing scientific excellence of the highest order, Stockholm, Sweden. In the shadow of the Old Town Hall, where each year recipients of the



Co-organizer **L. Gabriel Navar** welcoming meeting participants.

Nobel Prize are honored, investigators from around the world came together to exchange and discuss their most provocative research problems. This was not just a meeting of the established investigators but rather a consortium of well-established scientists, as well as energetic young scientists, fellows, and students. The end result was a friendly and productive series of sessions that promised to promote the common causes of the participants involved and future collaborative efforts between Scandinavian physiologists and atten-

dees from North America and elsewhere.

Stockholm University provided a beautiful backdrop to allow meeting participants to relax and enjoy the lively and informal program. The meeting entitled *Frontiers in Physiology* was co-organized by **A. Erik G. Persson** from Uppsala University in Sweden and **L. Gabriel Navar** from Tulane University in the United States. Lectures and poster sessions were held in Aula Magna Hall on the University campus. The meeting format included invited lectures (Table 1) and 20 forefront symposia (Table 2), featured topics sessions, and approximately 160 posters and selected presentations designed to highlight the hottest topics in physiology. Ample time was left for discussion and informal exchange both during and after the scheduled sessions.

A satellite symposium on *Functional Genomics - A New Approach to Understand Cardiovascular and Renal Dysfunction*, organized by **Peter Thoren** and **D. Neil Granger**, was also sponsored by *Acta Physiologica Scandinavica*. Satellite symposium sessions were also held at Stockholm University, making it very easy for registered participants of the main meeting to also attend the proceedings of this symposium.

The meeting was attended by 416 students, postdoctoral fellows and established investigators, giving the meeting

a truly global representation. Approximately 310 of those attending were from Scandinavia, whereas 80 came from the United States and Canada, 10 from Europe, and 16 from other countries.

Proceedings began with welcome addresses from the co-organizers, **A. Erik G. Persson** and **L. G. Navar**. Opening remarks were followed by an



Co-organizer **A. Erik G. Persson** addresses meeting attendees.

invited lecture given by **Gerhard H. Giebisch** on "Renal Potassium Channels: Function, Regulation and Structure." With the meeting formally opened, attendees quickly adjourned to the Stockholm City Hall for an informal



Gerhard H. Giebisch giving an invited lecture.

reception punctuated by a welcome address from the mayor of Stockholm and from the APS President, **Gerald F. DiBona**.

To assist APS members in good standing who wished to attend the joint meeting, APS established a Travel Award program, which provided travel awards ranging from \$800 to \$1000 to

Table 1. Invited Lectures

Invited Lecture	Speaker
Renal Potassium Channels: Function, Regulation and Structure	Gerhard H. Giebisch
Gastric H, K-ATPase and Acid Resistant Surface Proteins	John G. Forte
Vascular Control of Blood Pressure	Michael Mulvaney
Biology of Memory Systems	P. Anderson

help defray meeting expenses and to allow more individuals to experience this unique scientific opportunity. Thirty-three scientists and students from the US took advantage of these awards. Finally, as the scheduled proceedings drew to a close, attendees enjoyed an

evening aboard the steamship *Stockholm*. The cruise traveled along the Swedish archipelago as guests enjoyed informal conversation, dinner and entertainment.

The APS, the Scandinavian Physiological Society, and the organizing committees responsible for preparing the program sessions gratefully acknowledge the sponsorship support provided by AstraZeneca AB and the generous contributions from the International Congress of Physiological Sciences (IUPS), American Physiological Society, Oxford Optrinix Ltd., ADInstruments Ltd., PhotoMed GmbH, Data Sciences International, AgnTho's AB, Cambridge Electronic Design Limited, Perimed AB, CMA Microdialysis AB, and Aerocrine AB.



Edward W. Inscho
Tulane University

Table 2. SPS/APS Meeting Symposia

Signaling from gut to integrate the digestive response
 Paracrine mediators and signaling in the TGF
 Physiology and biophysics of the interstitium
 (Fluid mechanisms and solute transport)
 Control of sodium balance
 Physiological genomics and gene therapy
 Molecular mechanisms in exercise physiology
 Gastrointestinal mucosal barrier
 Renin-angiotensin system
 New concepts in pulmonary ventilation and perfusion distribution
 Neurohormonal regulation of arterial pressure and body fluid volume
 Nitric oxide and hypertension
 Development and synaptic plasticity
 Microvascular responses to acute and chronic inflammation
 Sensory motor integration in the control of movement
 Capillary permeability and mechanisms of glomerular ultrafiltration
 Cell pH regulation
 Molecular mechanisms in exo- and endocytosis
 Matrix and receptors
 Future drug discovery

APS to Sponsor 2001 Mass Media Fellowship

The APS will again sponsor an American Association for the Advancement of Science (AAAS) Mass Media Science and Engineering Fellowship during the summer of 2001.

Approximately two dozen AAAS Mass Media fellows will spend 10 weeks during summer, 2001, working in the newsrooms of newspapers, magazines, Internet news outlets, or radio or television stations. Fellows receive a short training course in science journalism prior to the fellowship. During the summer they develop their ability to communicate complex scientific issues to non-scientists and improve public understanding of science. The AAAS arranges placements at participating media outlets. The fellowship includes travel to Washington for orientation and

evaluation sessions at the beginning and end of the summer, travel to the job site, and a weekly stipend.

Individuals must be currently enrolled as a graduate or postgraduate student of physiology or a related discipline to apply for the APS fellowship. Additional fellowships are available for students in other scientific and engineering disciplines. Information about the program is posted on the AAAS Education and Human Resources Directorate website at http://ehrweb.aaas.org/ehr/3_4_0.html. The application form is available from the AAAS website or in the Awards for Students section of the APS website at http://the-aps.org/awards/awd_student.htm. A brochure with additional information is posted on both web sites.

In addition to the application form, applicants must submit a current résumé, a writing sample directed to the general public, transcripts of graduate and undergraduate work, and three letters of recommendation. The selection process is designed to seek out qualified candidates especially from under-represented communities, including African-Americans, Hispanics, and Native Americans, as well as scientists with disabilities.

The application deadline is January 15, 2001. For more information or to receive a copy by mail, contact Alice Ra'anani, APS Office of Public Affairs. (Telephone: 301-530-7105. E-mail: araanani@aps.faseb.org.)



APS Bylaw Changes

The membership of The American Physiological Society will be asked to vote on the following two proposed Bylaw changes at the annual Society Business Meeting to be held on Tuesday, April 3, 2001, during the Experimental Biology meeting.

The following Bylaw change to allow the Chair of the Section Advisory Committee to become a voting member of Council is proposed based on discussions held at the Strategic Planning Retreat in November 1999 and the Council meeting held in February 2000.

Article IV. Officers

SECTION 1. *Council.* The management of the Society shall be vested in a Council consisting of the President, the President-Elect, the immediate Past President, and six other regular members. The terms of the President and President-Elect shall be one year. The terms of the six additional Councillors shall be three years each and they shall

not be eligible for immediate reelection except those who have served for two years or less in filling interim vacancies.

A quorum for conducting official business of the Society shall be six of the nine elected members of Council.

The Chairpersons of the Publications Committee, the Finance Committee, the Joint Program Committee, the Education Committee, ~~the Section Advisory Committee~~, and the Executive Director are ex officio members of the Council without vote; the Chairperson of the Section Advisory Committee is an ex officio member of the Council with vote. The Council may fill any interim vacancies in its membership. Council shall appoint members to all committees except the Section Advisory Committee.

In the interim between meetings of Council, an Executive Cabinet consisting of the President, President-Elect, Immediate Past President, and the Executive Director shall implement the policies of the Council.

Article V. Standing Committees

SECTION 6. *Section Advisory Committee.* A Section Advisory Committee shall be composed of one regular member elected by each Section of the Society. Each member shall serve a term of three years; consecutive terms are prohibited. The Committee shall elect a Chairperson to serve a three-year term. ~~The Chairperson shall serve on Council as an ex officio member, with-
out with~~ vote.

The following wording is suggested as a bylaw change to incorporate an adjustment in the dues year from July 1 - June 30 to January 1 - December 31.

Article VI. Dues

SECTION 1. *Annual Dues.* The annual dues for regular members, affiliate members, and student members shall be determined by the Council and shall be paid in advance of ~~July~~ January 1. Honorary members and emeritus members shall pay no membership dues.

2001 Officers and Standing Committees

APS Council

Officers

Gerald F. DiBona, President (2001)
John E. Hall, President-Elect (2001)
Walter F. Boron, Past President (2001)

Councillors

Hannah V. Carey (2002)
William W. Chin (2001)
Douglas C. Eaton (2003)
Steven C. Hebert (2003)
Phyllis Wise (2001)
Jo Rae Wright (2002)

ex officio members

Robert G. Carroll, Education (2003)
Mordecai P. Blaustein, Finance (2002)
Judith A. Neubauer, Joint Program (2001)
Dale J. Benos, Publications (2001)
Celia D. Sladek, Section Advisory (2002)

Society Standing Committees

Animal Care and Experimentation

Maintains and updates the APS "Guiding Principles in the Care and Use of Animals," provides consultation regarding animal experimental procedures and care, and keeps abreast of legislation and new developments in animal models for student teaching and alternatives for animal usage.

John N. Stallone, Chair (2003)
Michael W. Brands (2003)
Kevin C. Kregel (2002)
Steven W. Mifflin (2001)
Linda A. Toth (2001)
Elizabeth Wagner (2002)
Matthew Walker, student member (2002)

William T. Talman, *ex officio* (2003)
Alice Ra'anan, *ex officio*

Awards

Oversees the award programs of the Society to ensure uniformity and conformity with the goals of APS, investigates new means of funding for the APS awards program, and selects Research and Teaching Career Enhancement Awardees, Wang, Mandel, and Guyton Awardees, and APS Postdoctoral Fellowship Awardees.

Thomas V. Peterson, Chair (2001)
Margaret Colden-Stanfield (2002)
Debra I. Diz (2003)
Walter N. Durán (2003)
Ronald H. Freeman (2003)
Stephen A. Kempson (2002)
Bruce G. Lindsey (2002)

Sadis Matalon (2001)
 J. Michael Overton (2002)
 Patricia Preisig (2001)
 D. Eugene Rannels (2002)
 Janice H. Urban (2002)
 Pamela J. Gunter-Smith, *ex officio* (2001)
 Susan M. Barman, *ex officio* (2001)

Career Opportunities in Physiology

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

Francis L. Belloni, Chair (2003)
 Thomas C. Herzig (2001)
 John H. Johnson (2002)
 Karen D. Mittleman (2003)
 Kathleen P. O'Hagan (2003)
 Darryl R. Peterson (2002)
 David M. Pollock (2003)
 Marsha Lakes Matyas, *ex officio*

Committee on Committees

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

Phyllis M. Wise, Chair (2001)
 Hannah V. Carey (2002)
 Pamela Carmines (2002)
 William M. Chilian (2003)
 Gregory D. Fink (2003)
 Steven C. George (2001)
 Penny Hansen (2001)
 Joseph R. Haywood (2003)
 M. Harold Laughlin (2001)
 Marshall H. Montrose (2001)
 Johnny R. Porter (2002)
 Mrinalini C. Rao (2003)
 Bill Yates (2002)
 Melinda E. Lowy, *ex officio*

Ray G. Daggs Award

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

James E. Faber, Chair (2001)
 John R. Claybaugh (2002)
 Beverly Bishop (2003)

Education

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

Robert G. Carroll, Chair (2003)
 J. Thomas Cunningham (2002)
 Jeffery R. Demarest (2002)
 Cheryl M. Heesch (2001)
 Robert L. Hester (2003)
 George A. Ordway (2002)
 Jeffrey L. Osborn (2003)
 Michael F. Romero (2002)
 Whitney M. Schlegel (2002)
 Richard C. Vari (2001)
 John G. Wood (2002)
 Michael D. Johnson, *ex officio* (2002)
 Penny Hansen, *ex officio* (2001)
 Francis L. Belloni, *ex officio* (2003)
 Marsha Lakes Matyas, *ex officio*

Finance

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

Mordecai P. Blaustein, Chair (2002)
 Steven L. Britton (2001)
 William H. Dantzer (2001)
 Nancy K. Wills (2003)

Walter F. Boron (2001)
 Gerald F. DiBona, *ex officio* (2001)
 John E. Hall, *ex officio* (2001)
 Dale J. Benos, *ex officio* (2001)
 Robert T. Price, *ex officio*

International Physiology

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

Hector Rasgado-Flores, Chair (2001)
 Albert F. Bennett (2002)
 Carmen Hinojosa-Laborde (2001)
 Virginia Huxley (2002)
 Pontus B. Persson (2003)
 John B. West (2002)
 Matthew J. Kluger, *ex officio* (2000)
 Shu Chien, *ex officio* (2001)
 Douglas C. Eaton, Council member (2003)

Joint Program

Develops the scientific programs for the Society and assists Council in shaping policy for scientific programs and in the organization of fall conferences.

Judith A. Neubauer, Chair (2001)
 At-Large Members:
 Michael Caplan (2001)
 Craig H. Gelband (2002)
 Laurie J. Goodyear (2002)
 William G. Haynes (2003)
 Scott K. Powers (2001)
 Jeff M. Sands (2003)

Cardiovascular

Julian H. Lombard (2002) and
 Michael Zile (2003)

Cell and Molecular Physiology

Simon A. Lewis (2001)

Central Nervous System

J. Michael Wyss (2002)

Comparative Physiology

James W. Hicks (2002)

Endocrinology and Metabolism

Charles H. Lang (2001)

Environmental and Exercise Physiology

Clark M. Blatteis (2002)

Gastrointestinal

Matthew B. Grisham (2003)

Neural Control and Autonomic

Regulation

Frank J. Gordon (2001) and

Alan F. Sved (2003)

Renal

Christine Baylis (2002) and

Michael Caplan (2001)

Respiration

Jahar Bhattacharya (2003) and

J. Usha Raj (2002)

Teaching of Physiology

Joel A. Michael (2003)

Water and Electrolyte Homeostasis

Joey P. Granger (2002)

Epithelial Transport Group

Thomas Kleyman (2002)

History of Physiology Group

G. Edgar Folk, Jr. (2000)

Hypoxia Group

Nanduri R. Prabhakar (indefinite)

Myobio Group

Thomas M. Nosek (indefinite)

Members in Industry Group

Terry J. Opgenorth (2001)

Education Committee

Robert G. Carroll (2003)

Linda Allen, *ex officio*

Liaison With Industry

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

Terry J. Opgenorth, Chair (2001)

Theodore P. Broten (2002)

Bryan F. Cox (2001)

Amy E. Halseth (2003)

Salah D. Kivlighn (2001)

Jodie K. Krontiris-Litowitz (2001)

Kenneth G. Mandel (2002)

Chahrazad "Sharzad" Montrose-

Rafizadeh (2001)

Carlos R. Plata-Salaman (2002)

Glenn A. Reinhart (2003)

Stephen C. Wood (2003)

Bradley A. Zinker (2002)

William W. Chin, Council Member (2001)

Long-Range Planning

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

Allen W. Cowley, Jr., Chair (2002)

William H. Beierwaltes (2001)

Gregory D. Fink (2001)

Peter A. Friedman (2002)

Gary J. Schwartz (2001)

Alan F. Sved (2003)

John A. Williams (2002)

Steven C. Hebert, Council Member (2003)

Membership

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

Martha E. O'Donnell, Chair (2001)

David H. Ellison (2002)

W. Larry Kenney (2002)

Raouf A. Khalil (2001)

Charles H. Lang (2002)

Caroline R. Sussman (2003)

Catherine F. T. Uyehara (2002)

Linda Allen, *ex officio*

Perkins Memorial Fellowship

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

Matthew J. Kluger, Chair (2001)

Klaus W. Beyenbach (2001)

Andrew J. Lawrence (2003)

Alice R. Villalobos (2003)

Molly P. Hauck, *ex officio* (indefinite)

Porter Physiology Development

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

Pamela J. Gunter-Smith, CoChair (2001)

H. Maurice Goodman, CoChair (2001)

Mouhamed S. Awayda (2003)

Parimal Chowdhury (2001)

Cynthia A. Jackson (2003)

Irving G. Joshua (2003)

Evangeline D. Motley (2001)

Jane F. Reckelhoff (2002)

Frank Talamantes (2002)

Marsha Lakes Matyas, *ex officio*

Public Affairs

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

William T. Talman, Chair (2003)

Virginia Brooks (2002)

Andrea R. Gwosdow (2001)

Ronald M. Lynch (2003)

Timothy I. Musch (2001)

Willis K. Samson (2002)

Irving H. Zucker (2003)

John N. Stallone, *ex officio* (2003)
Alice Ra'anan, *ex officio*

Publications

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

Dale J. Benos, Chair (2001)
David H. Alpers (2001)
Richard A. Murphy (2002)
Hershel Raff (2003)
James A. Schafer (2001)
Gerald F. DiBona, *ex officio*
Margaret Reich, *ex officio*

Section Advisory

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

Celia D. Sladek, Chair (2002)

Cardiovascular

Kathleen H. Berecek (2001)

Cell and Molecular Physiology

Robert B. Gunn (2001)

Central Nervous System

Susan M. Barman (2002)

Comparative Physiology

David H. Evans (2002)

Endocrinology and Metabolism

David H. Wasserman (2001)

Environmental and Exercise Physiology

Charles M. Tipton (2001)

Gastrointestinal Physiology

Helen E. Raybould (2002)

Neural Control and Autonomic Regulation

Jeanne L. Seagard (2003)

Renal

Jeff M. Sands (2002)

Respiration

Michael A. Matthey (2002)

Teaching of Physiology

Dee U. Silverthorn (2002)

Water and Electrolyte Homeostasis

Thomas E. Lohmeier (2003)

Linda Allen, *ex officio*

Senior Physiologists

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

Eugene M. Renkin, Chair (2001)

Michael Bárány (2003)

David F. Bohr (2003)

G. Edgar Folk (2001)

Stanley G. Schultz (2003)

N. Herbert Spector (2002)

Karlman Wasserman (2002)

Women in Physiology

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

Susan M. Barman, Chair (2001)

Siribhinya Benyajati (2002)

Robin L. Davison (2003)

Lisa M. Harrison-Bernard (2001)

Carole M. Liedtke (2001)

Suzanne M. Schneider (2002)

Donna H. Wang (2002)

Kim Huey, student member (2002)

Marsha Lakes Matyas, *ex officio*

Society Representatives to Other Organizations

Association for Assessment and Accreditation of Laboratory Animal Care, International

John N. Stallone (2003)

American Association for the Advancement of Science

Frank L. Powell (2001)

Hershel Raff (2002)

Barbara E. Goodman (2002)

Council of Academic Societies of the Association of American Medical Colleges

Vernon S. Bishop (2001)

William H. Dantzer (2003)

Federation of American Societies for Experimental Biology Board

L. Gabriel Navar (2001)

Gerald F. DiBona (2002)

FASEB Executive Officers Advisory Committee

Martin Frank (indefinite)

Experimental Biology Board

Leonard S. Jefferson (2001)

FASEB Finance Committee

Robert Gore (2001)

FASEB Excellence in Science Award Committee

Susan Barman (2001)

FASEB Public Affairs Executive Committee

L. Gabriel Navar (2001)

FASEB Science Policy Committee

William T. Talman (2003)

FASEB Publications & Communications Committee

Pamela Gunter-Smith (2003)

FASEB Research Conference Advisory Committee

Mark Chapleau (2002)

FASEB Wellcome Visiting Professorship

M. Ian Phillips (2002)

National Association for Biomedical Research

Martin Frank (indefinite)

US National Committee for IUPS

Walter F. Boron (2001)

Gerald F. DiBona (2002)

John E. Hall (2003)

US National Committee on Biomechanics

Andrew McCulloch (2002)

A Response to the PCRM Free Video Offer for Medical Students

Murray Cohen, MD
Physicians Committee for Responsible
Medicine (PCRM)
5100 Wisconsin Ave. NW, Suite 404
Washington, DC 20016

Dear Doctor Cohen:

About a month ago, the Chair of our department, Robert Rakowski, gave me a videotape, *Advances in Medical Education*, with Henry Heimlich, MD, that PCRM had sent to him along with a letter from you suggesting that we consider teaching physiology without utilizing live animal-laboratories. After viewing this videotape, I have decided that it is necessary to respond to the message *Advances* attempts to relay to the medical community.

As a physiologist, it seems to me that the appropriateness (or inappropriateness) of live-animal demonstrations of cardiovascular and respiratory reflexes in medical physiology courses revolves around two issues. First, is it ever ethical for humans to sacrifice animals? In other words, should we even use animals for food, clothing, or medical research? If we agree that it is sometimes ethical for humans to utilize animals, then a second issue should be considered: can a carefully conducted demonstration of cardiovascular and respiratory reflexes performed on live anesthetized animals relay important aspects of physiology to students more effectively than can the "alternative" methods suggested in *Advances*? Although *Advances* strongly implies that use of live animals in the teaching of medical physiology is never ethical, it fails to present any rationale for this point of view. For example, the young woman in *Advances*, who is a Harvard medical student, strongly believes that sacrifice of animals for educational purposes is unethical, and furthermore wants all her classmates to have the same point of view. Her opinion notwithstanding, we must face this issue: is it ever ethical for humans to use

animals? I submit that unless all who participated in the production of *Advances* are strict vegetarians (including fish, lobsters, and clams), then we'll have to base our decision regarding whether or not to use animals on the relative educational value of our animal labs as opposed to alternative methods of teaching physiology. To restate the issue: can certain aspects of cardiovascular and respiratory physiology be taught better with live animal demonstrations than by a) observing human surgery in the operating room or by b) observing the reflexes with computer-simulations. The videotape *Advances* only touts the virtue of watching human surgery, and never addresses the possible utility of computer simulation. Thus, I'm going to assume that like many other students, Harvard students find computer-simulations of physiological responses inadequate. If this were not so, then why bother organizing all those visits to surgical suites? So, for the sake of brevity in this letter, I shall

As some of you are aware, the Physicians Committee for Responsible Medicine (PCRM) is offering a free video to medical students, which is designed to encourage them to lobby institutions to eliminate the use of animals in teaching laboratories. As noted on the PCRM web site, "*Advances in Medical Education*" with Henry Heimlich, MD, examines one of today's most pressing issues in medical education. The film provides an exciting look into Harvard Medical School's comprehensive, popular, and clinically-based alternative to the traditional physiology "dog lab." Now, instead of watching the effects of various drugs on an anesthetized animal, students at Harvard can go directly into the operating room to observe an actual human cardiac bypass surgery. The video provides a poignant discussion of the ethics and effectiveness of live

only deal with whether the cardiovascular and respiratory reflexes are better taught to the first year medical student in the live animal physiology lab or in the surgical suite.

I will grant the producers of *Advances* that the surgeons (anesthesiologists) monitor arterial blood pressure, venous pressure (right and left ventricular preload) and blood gases very effectively—in many cases—with more sophisticated equipment than we utilize in our live animal laboratories. However, the task of the anesthesiologist is to prevent blood pressure and blood gases from ever becoming abnormal during the course of the surgery. Since during most major surgery, ventilation is either totally inhibited or severely compromised by the muscle relaxants administered to the patient, ventilation is almost always controlled mechanically by the anesthesiologist throughout the surgery. Thus, the respiratory response to increased or to decreased PCO₂, and/or PO₂ can never

animal laboratories in medical education."

Medical students are being encouraged to request a free copy of the video through the PCRM web site. In addition, copies of the video have been sent to a number of department of physiology chairs.

Recently, Charles McCormack, Professor of Physiology, Chicago Medical School, sent a response to PCRM after viewing the film. I thought McCormack's letter was informative and might be of assistance to the membership who might be asked to respond to the videotape by their students. Consequently, I am re-printing McCormack's letter (with his permission).

The APS will continue to work with the membership to counter the efforts of the activist community.

Martin Frank
Executive Director

be (or should never be) demonstrated during human surgery, as we are able to do quite dramatically during live animal labs. With regard to arterial and venous blood pressures, the anesthesiologist's task is to keep these parameters within narrow acceptable limits. Please don't tell me that the anesthesiologist stimulates efferent fibers in the vagus nerve in order to slow the heart rate (or even produce an A-V nodal block) as we do in animal labs. Will the anesthesiologist ever experimentally raise the patient's head to several inches above the patient's legs to demonstrate the effect of decreased venous return on arterial blood pressure? Most surgeons would object!

We should also consider the relative cost of live animal labs versus the cost of having the student spend several hours observing surgery. I will agree that it costs a lot to perform a live animal cardiovascular lab for medical students. Nevertheless, let's also realistically consider the cost of having extra students in the operating room. For a typical first-year medical school class of 150 students, approximately 75 surgeries would have to be observed. (I'm assuming the operating room can not accommodate more than two extra individuals at a time.) Is there no cost involved in this? Caps, gowns, masks and gloves must cost something judging from the hospital bill I received following my last surgery. Moreover, one of the anesthesiologists in *Advances* states that during the surgery, the student has an anesthesiologist and a surgeon at his/her "beck and call." This was, of course, an exaggeration, but realistically, in calculating the cost of running a medical school or a surgical residency, administrators assume that it costs money to have students and residents in the operating room. Are first-year medical students an exception? I'll bet administrators don't think so; especially if the first year students get lots of special attention from the anesthesiologist and the surgeon as implied in *Advances*.

The quality of the educational experi-

ence a first-year medical student receives in the operating room must vary considerably depending on the student's background, the surgery being performed, the surgeon, and the anesthesiologist. Interestingly, one of the students observing surgery in *Advances* erroneously asserts that norepinephrine has beta-2 adrenergic activity, and the anesthesiologist fails to correct him. Also, at one point, the anesthesiologist states that the lactate in the Ringer's solution being infused into the patient gets converted to bicarbonate. That's news to me! In addition, the anesthesiologist fails to explain how injecting cold saline solution into the right atrium enables him to determine cardiac output. Cardiac output seems to come forth from the Swan-Ganz thermister like magic. If the physiology displayed in *Advances* is illustrative of that given to naïve first year medical students during their visits to the operating room, then their exposure to physiology is inadequate.

Advances correctly states that most medical schools no longer utilize live animal labs to train their students. While this is true, these labs were discontinued for reasons having nothing to do with their excellent educational value. First, in the early 1970's, animal rights activists managed to get legislation passed that made it impossible to use "dog-pound"-dogs for animal labs. This forced physiology departments to utilize expensive "purpose-bred" animals for their labs.

Interestingly, for those departments that chose to continue conducting animal labs in spite of the increased expense, the animal that is now utilized is truly "created" and sacrificed for the lab (pure-bred beagles, swine piglets); whereas in former days, the only animals sacrificed were those destined for euthanasia in the animal pound.

Secondly, because very few animal labs are presently given in medical schools, many newly trained physiologists are no longer well versed in the conduct of these labs. As a result, it is

difficult to sequester an adequate number of instructors to direct the animal labs properly. Thus animal labs have been discontinued by many medical school physiology departments, but this decision was not made because the systemic physiology demonstrated in these labs lacked importance, was out of date, or was poorly presented.

Two additional aspects of *Advances* are particularly troublesome to me. First, while most clinicians and scientists lean over backwards to avoid being (or even appearing to be) elitist, *Advances* has an aura of elitism. For example, though surely well meaning, Professor Heimlich speaks as if humanism in medicine has been lost for decades, but that fortunately he has rediscovered it, and now he feels obliged to urge us to join the cause. Secondly, at another point in *Advances*, Dr. Don Sloan states that in his surgical training, one of his respected surgical mentors stated that Sloan should forget what he learned his medical school dog-labs. This statement is astounding! Certainly, Sloan's mentor did not mean that Sloan should forget the physiology he learned in his dog-labs, because it is the same physiology that everyone uses to keep their patients alive. Furthermore, the importance of all of the parameters he monitors from his patient during surgery was first established in animal laboratories. Perhaps Sloan's mentor was indicating that the surgical techniques utilized in the dog-labs are not those one should use on patients. In that sense he would be correct. As physiologists, we never pretend to be teaching surgical skills, but we do illustrate extremely important cardiovascular and respiratory reflexes in our live animal labs, and we do this far better than was illustrated in the surgical room experiences shown in *Advances*.

Sincerely,

Charles E. McCormack, PhD
Professor and Course Director of
Medical Physiology at The Chicago
Medical School

Introducing Jeanne Seagard

Effective April 2000, **Jeanne L. Seagard** succeeded Eileen M. Hasser as the chair of the Neural Control and Autonomic Regulation Section of the APS. Seagard served as the Secretary/Treasurer for the prior two years on the NCAR Section Steering Committee. She also served on the APS Membership Committee prior to her election to the NCAR Steering Committee.

Seagard is a Professor of Anesthesiology and Physiology at the Medical College of Wisconsin (MCW) in Milwaukee, Wisconsin. She did her undergraduate and Master's degree training at the University of Wisconsin-Milwaukee and received her PhD in 1978 from MCW, where she was a student of John Kampine. Her dissertation research investigated the functional and anatomical characteristics of sympathetic afferent innervation and control of the heart and cardiovascular system. Upon completion of her doctoral degree, Seagard began postdoctoral training at the same institution under an NIH Postdoctoral Research Award, continuing studies into reflex control of the cardiovascular system, examining the interaction of the reflexes initiated by sympathetic afferent input versus control exerted by the better characterized baroreceptor reflexes. In addition, studies were extended to more fully examine the effects and mechanisms behind anesthetic alteration of baroreflex control, focusing on the effects of clinically relevant anesthetics in an attempt to define when use of a given anesthetic may be preferable over use of a different one. In 1981, Seagard joined the faculty at MCW. In addition, Seagard is also a Research Career Scientist at the Zablocki Department of Veterans Affairs Medical Center.

Along with her APS activities, Seagard has served on American Heart Association and NIH study sections and continues to review on an ad hoc basis.



Jeanne Seagard

She also serves on the Cardiopulmonary Review Panel for NASA grant reviews and is an active reviewer for many peer-reviewed journals. She is the chair of the Research and Development Committee at the Milwaukee VA Medical Center and serves on numerous MCW and departmental committees.

The aims of research conducted by Seagard and colleagues is to more fully characterize the central integration of afferent input from barosensitive receptors, examining the integration of inputs from these receptors by medullary neurons that receive the activity. Earlier studies characterizing firing characteristics and functional roles of two subtypes of carotid baroreceptors have now led to studies that are characterizing patterns of medullary neuronal activity during physiological pressure stimulation of the afferent barosensitive endings. Results of this work have identified subpopulations of central neurons with different firing patterns that may play roles in the control of blood pressure. Over the last several years her laboratory has used extracellular afferent nerve recordings, extracellular medullary neuronal recording, and immunohistochemical techniques to more fully define these subpopulations of neurons and the mechanisms behind their activation.

Seagard and the NCAR Steering

Committee have a number of goals for the Neural Control and Autonomic Regulation Section. In recent years, the participation of members of this Section at the annual Experimental Biology Meeting has greatly increased, and they feel it is important to continue this increase in activity. The recent change by APS that allows sections to more directly control programming offers increased opportunities for members to participate in designing seminars and featured topics for their Section. The Steering Committee hopes to stimulate participation of more members at the annual meeting to increase the number of programming opportunities and use this incentive to allow the Section to grow and serve the needs of the members. It is hoped that, in addition to the strength of the Section in neural control of the cardiovascular system, members in different areas of autonomic function will also organize seminars and featured topics. In addition, it will be a goal of the Steering Committee to increase the participation of Section members on APS committees where they can contribute to the growth and strength of the Society as a whole. The opportunities for Section members to participate must be expanded. This will be facilitated by more direct communication with members, obtaining their opinions on important issues, and encouraging Section members to become involved and offer services. One area in which Section members will be encouraged to participate is the organization of specialty APS conferences in their areas of scientific expertise. The NCAR Steering Committee will offer help in organizing the applications and implementation of the conferences. These goals are supported by other members of the Steering Committee, including **Eileen M. Hasser**, Past-Chair; **William T. Talman**, Member-at-Large; **Frank J. Gordon**, Head of the Section Programming Subcommittee, and **Alan**

F. Sved, Representatives to the Joint Committee on Programming; **Gregory D. Fink**, Committee-on-Committees Representative; and **Bryan F. Cox**,

Industry Liaison. Additional assistance will be obtained from **Robin L. Davisson**. Any comments or concerns of NCAR section members can be

directed to any member of the Steering Committee. The input is encouraged and helps the Section become more responsive to its members. ❖

Introducing Michael M. Mueckler

Michael M. Mueckler, Professor of Cell Biology and Physiology at Washington University School of Medicine, will assume the editorship of the *AJP-Endocrinology and Metabolism* beginning January 1, 2001. Mueckler received his PhD in Oncology in 1983 from the University of Wisconsin-Madison and was then awarded a fellowship from the Damon Runyon-Walter Winchell Cancer Fund to perform postdoctoral studies with Harvey Lodish at the Massachusetts Institute of Technology and the Whitehead Institute for Biomedical Research. He was appointed Assistant Professor in the Department of Cell Biology and Physiology at Washington University Medical School in 1986 and promoted to Professor in 1995. He is also Co-Director of the Diabetes Research and Training Center at Washington University.

Mueckler served as Associate Editor of *Diabetes* for five years and has served on the editorial boards of the *Journal of Biological Chemistry*, *Biochemical Journal*, and *AJP-Endocrinology and Metabolism*. He has served as a consultant to numerous federal and private agencies, including four years as a member of the NIH Metabolism Study Section. He served on the Scientific Advisory Board of the Juvenile Diabetes Foundation International, as Chair of the American Diabetes Association Council on Molecular, Cellular, and Biochemical Aspects of Diabetes, and as a member of American Diabetes Association Scientific Sessions Planning Committee. He was the founding Co-Chair of the FASEB Summer Research Conference on Glucose Transport and was elected to serve as Chair in 1995. Mueckler received the Inbusch Award



Michael M. Mueckler

for Meritorious Medical Research from the University of Wisconsin in 1983, a Career Development Award from the Juvenile Diabetes Foundation in 1989, the Boehringer Mannheim/JDFI Diabetes Research Award in 1997, and the Outstanding Scientific Achievement Award from the American Diabetes Association in 1998.

Mueckler's research has focused on glucose transport and insulin action. He cloned the first member of the GLUT gene family in 1984, and five years later he and his colleagues cloned the insulin-responsive glucose transporter, GLUT4. They demonstrated through the analysis of transgenic mice that GLUT4 is a critical component in the regulation of whole-body glucose homeostasis. This work helped facilitate recognition of the role of deranged GLUT4 regulation in insulin resistance and the development of non-insulin-dependent diabetes mellitus. Mueckler's current research is concerned with four general themes: 1) determining the structure and transport mechanism of GLUT proteins, 2) unraveling the molecular mechanism of GLUT4 regulation in skeletal muscle and its

derangement in non-insulin-dependent diabetes, 3) determining the physiological roles of several recently identified novel members of the GLUT gene family, and 4) understanding the mechanisms of glucose and protease inhibitor-induced insulin resistance in adipocytes and skeletal muscle.

Mueckler intends to uphold the current high standards of rigorous and fair peer review for *AJP-Endocrinology and Metabolism* maintained by his predecessor, **Jeffrey Pessin**. He expects the overall time from manuscript submission to publication to be decreased significantly during 2001, due in large part to the implementation of online submission and review procedures. Mueckler has assembled an outstanding team of Associate Editors, including **Gerald Shulman** of the Howard Hughes Institute at Yale University, **Michael McDaniel** of the Department of Pathology at Washington University, **Luciano Rossetti** of the Department of Medicine at Albert Einstein, **Mark Magnuson** of the Department of Molecular Physiology at Vanderbilt, **Clay Semenkovich** of the Department of Medicine at Washington University, and **Charles Burant** of the Department of Cell Biology at Pfizer Global Research and Development. The new editorial team is hoping to increase the impact factor of the journal by increasing the number of review articles and invited editorials published, aggressively soliciting high-quality research manuscripts, and through the selection of an outstanding editorial board. Efforts will be made to specifically solicit a greater number of submissions dealing with clinical endocrinology, as well as investigations applying new genetic and molecular approaches to the study of metabolism. ❖

Membership

New Regular Members

*transferred from student membership

Corrie B. Allen
National Jewish Medical Research Ctr

Carl S. Apstein
Boston Univ. School of Med.

Valerie E. Armstead
Thomas Jefferson Univ.

Patrice Bioly
Univ. of New Orleans

Anna K. Brzezinska
Medical College of Wisconsin

Mohamed Boutjdir
NY Harbor Health Care System

Manuel A. Cardenas
Univ de la Sabana, Columbia

Ravi S. Chari
Univ. of Massachusetts Med Sch

Sonya D. Coaxum*
Univ. of Michigan

Robert J. Cormier
Washington Univ.

Marco De Reizen
Fnd Don C. Gnocchi, Italy

Thanh Ngoc Doan*
Emory Univ.

Hilmar Dorge
Univ. Aachen Med Sch, Germany

David Leroy Dyer
Woodward Labs, Inc.

Antonio Figl
Univ. of California, Riverside

Garret J. Gross
Medical College of Wisconsin

Ying Gu
Univ. of Texas Southwestern Med Ctr

Jason James Hamann*
Medical College of Wisconsin

Kevin Scott Harrod
Lovelace Resp. Res. Inst.

Thomas James Hawke*
Univ of Texas Southwestern Med Ctr

Steven Andrew Hawkins
California State Univ.

Michael J. Hickey
Baker Medical Research Institute

Randa Hilal-Dandan
Univ. of California-San Diego

Chin Hsu
Kaohsiung Med. Univ., Taiwan

Walleed Khaled Hussein
Univ. of California-San Francisco

Sanjay Balkrishna Jadhao
INRA, France

Enrique Jaimovich
Univ. of Chile, Chile

Mika B. Jekabsons*
Med Research Council, England

Lukas Jenni
Swiss Ornithological Inst, Switzerland

Lyndon Jerry Owen Joseph*
Univ. of Maryland

Robert William Kenefick*
Univ. of New Hampshire

Marie E. Kerl
Univ. of Missouri

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Univ. of Pittsburgh

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Univ. of Alabama, Birmingham

Shannon T. Knuth*
Western Oregon Univ.

Mikhail Yurjevich Koshukov
Univ. of Texas Medical Branch

Terry S. LeGrand
Univ. of Texas Health Sci. Ctr.

Edardo Marban
Johns Hopkins Univ.

Christine Maric
Univ. of Melbourne, Australia

Sean Poul Marrelli
Baylor College of Medicine

Steve D. McCole*
Univ. of Wisconsin-Milwaukee

Mary Catherine McElroy
Univ. of Edinburgh, Scotland

Noel Gerry McElvaney
RCSI-Beaumont Hospital

Jennifer Renee Melcher
Massachusetts Eye & Ear Infirmary

Chang-Hyun Moon
Ajou Univ. Sch. of Med, Korea

Shakeeb Hassan Moosavi
Harvard School of Public Health

Debnath Mukhopadhyay
Washington Univ.

Michael A. Nauck
Rutir-Univ Bochum, Germany

Akira Nishiyama
Tulane Univ. School of Med

Brian Jeffrey Norris
California State Univ.

Bishr Omary
Palo Alto VA Hosp

Gianfranco Parati
Istituto Auxologico, Italy

Stephen Boyd Phagoo
Children's Hospital, Los Angeles

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Vanderbilt Univ.

Khwaga A. Rashid
Beth Israel Deaconess Med Center

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Univ. of Southern California

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Univ. of Pittsburgh

David Robertson
Vanderbilt Univ.

Bryan Charles Rourke
Univ. of California, Irvine

Craig Gordon Ruau
Coll of Vet Med, Texas A&M Univ.

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Kobe Gakuin Univ., Japan

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Airlangga School of Med, Indonesia

Nora Barclay Terwilliger
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Chun-Hui Tsai
Children's Hospital, Denver

Rangappa Vasudev
Basaveshwara Medical Coll, India

Joan Vernikos
NASA

Leila Veronica Virkki
Yale Univ. School of Medicine

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Mayo Clinic

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Case Western Reserve Univ.

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Univ. of the West of England

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Duncan Nigel French

Ball State Univ.

Amanda Lynn Fuson

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Edith Gagnon

Laval Univ.

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Fushun Yu*

Pennsylvania State Univ.

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Hope College

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Ball State Univ.

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Brigham & Young Women's Hospital

Vallie M. Hollowa

Florida A&M Univ.

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James Craig Hunter

Penn State Univ.

Tanya Johnson

Institute of Child Health-London

Krista Kaasik

Baylor College

Shawna Karpovich

Univ. of Alaska-Fairbanks

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Univ. of Western Ontario

Vlad Kustanovich

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Ian Lanza

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Res. Ctr. Hotel dieu De Quebec

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Univ. of Texas-Austin

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Jing-Da Shi

Univ. of Florida

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Yale Univ.

Reha Mehmet Toydemir

Finch Univ.; Chicago Med. Sch.

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Univ. of Louisville Sch. of Med.

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Univ. of California

Iris Mona Wolff

Univ. of Philadelphia

Zigiang Yu

Univ. of Maryland

Huiping Zhang

Queens Univ.

Xiachui Zhang

Univ. of Miami

New Affiliate Members

Michael L. Canute

Hawaii Pacific Univ.

Matthew A. Gordon

Kansas Univ.

Tanaz Mistry

Bristol-Myers Squibb

Jerry D. Norton

Georgia State Univ.

Peter C. Sullivan

Sanford Brown College

Experimental Biology 2001

March 31-April 4, 2001 • Orlando, FL



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



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

Distinguished Lectureships



JOSEPH ERLANGER
DISTINGUISHED LECTURESHIP
OF THE CENTRAL NERVOUS
SYSTEM SECTION

Gerald D. Fischbach
NINDS

*“Plasticity at Peripheral and
Central Synapses”*

SUNDAY, APRIL 1, 8:00 AM



CARL LUDWIG
DISTINGUISHED LECTURESHIP
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

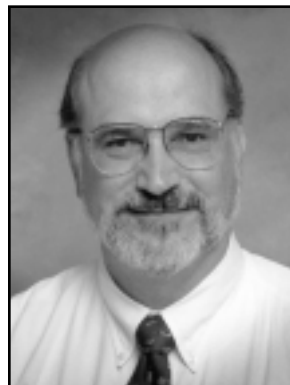


CLAUDE BERNARD
DISTINGUISHED LECTURESHIP OF
THE TEACHING OF PHYSIOLOGY
SECTION

Joel A. Michael
Rush Medical College

*“In Pursuit of Meaningful
Learning”*

SUNDAY, APRIL 1, 3:15 PM



ROBERT M. BERNE
DISTINGUISHED LECTURESHIP
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



HUGH DAVSON
DISTINGUISHED LECTURESHIP 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



ERNEST H. STARLING
DISTINGUISHED LECTURESHIP
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

Experimental Biology 2001

March 31-April 4, 2001 • Orlando, FL

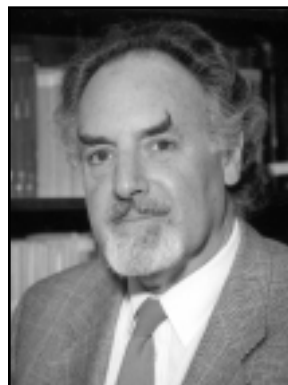


SOLOMON A. BERSON
DISTINGUISHED LECTURESHIP
OF THE ENDOCRINOLOGY AND
METABOLISM SECTION

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



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



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



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



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



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

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

Section-Sponsored Featured Topics

Poster Discussion: Muscle Fatigue

William T. Ameredes

Plasticity and Repair of the Phrenic Motor System

Following Cervical Spinal Injury: Current Concepts

Donald C. Bolser and Gordon S. Mitchell

Calcium Sensing Receptors

Gerda E. Breitwieser

EDHF: Chemical Nature and Sites of Action

William B. Campbell and Paul M. Vanhoutte

Cerebral Cortical Influences on Autonomic Regulation

David Cechetto

Cellular Mechanisms of Regulated Secretion in the GI Tract

Catherine S. Chew and John G. Forte

Robert M. Berne Award Featured Topic

William Chilian

Understanding the Role of the Angiotensin System Through the Actions of Angiotensin (1–7)

Carlos M. Ferrario and K. Bridget Brosnihan

Role of the Endothelial Factor in Hypertension

Gregory Fink and David Pollock

Featured Presenter: David Mattson

Physiology of Urea Transporters

Robert B. Gunn and Jeff M. Sands

Cell Signaling in Airway Smooth Muscle

Susan J. Gunst and Keith Jones

Cellular Response to Mechanical Stress

Rolf D. Hubmayr and Jeffrey J. Fredberg

Regulation of Vascular Tone by Oxygen:

Many Mechanisms—Few Answers

William F. Jackson

What is the Role of Mast Cells in Cardiovascular Disease

Joseph S. Janicki and Gregory L. Brower

Wiggers Award: Novel Mechanisms of Cardiovascular

Control by Nitric Oxide

Gabor Kaley

Autonomic and Cardiovascular Regulation:

Focus on Nociceptin and Opioid Peptides

Daniel R. Kapusta

Developmental Regulation of Oxygen Sensing

P. Kumar and John L. Carroll

Renal Section Young Investigator Award Featured Topic:

Hypertonicity Stress: New Sites of Recognition

H. Moo Kwon

Role of the Endothelium in GI Inflammation

Peter R. Kvietys, and J. Steven Alexander

The Emerging Neurobiology of Obesity:

Autonomic and Cardiovascular Implications

Allyn Mark

Mechanisms and Modifications of Alveolar Epithelial Fluid Transport in the Mammalian Lung

Michael A. Matthay

Comparative Aspects of Circadian Organization in Vertebrates

Michael Menaker and Carla Green

The Evolution and Modification of the Hypercapnic Ventilatory Response

William K. Milsom and Steve F. Perry

Heat Shock Proteins: Environmental and Exercise Stress

Pope L. Moseley

Electroneutral Ion Transport in the Central Nervous System

John A. Payne

Neural and Endocrine Regulation of Blood Volume and Arterial Pressure

Pontus B. Persson and Heimo Ehmke

Invited Presenter: Hartmut Kirchheim

Special Focus Topic: Perspective on Problem-Based Learning: Thorns and Roses

Patangi K. Rangachari and Aviad Haramati

Role of Oxidative Stress in Hypertension

Jane Reckelhoff and Magdalena Alonso-Galicia

Invited Presenter: Christopher Wilcox

Nitric Oxide: Skeletal Muscle Function and Blood Flow

Michael B. Reid and Michael D. Delp

Molecular Mechanisms of HCO₃⁻ Transport

Michael F. Romero and Paul M. Quinton

Ion Channel Remodeling in Cardiovascular Disease:

Pathogenesis and Therapeutic Implications

Nancy Rusch and Craig H. Gelband

Cell Stress and Protein Kinases: Integrated Signaling in vivo

Kenneth B. Storey

Mechanisms of Muscle Injury in Sepsis

Gerald Supinski

Spinal Cord Injury: Degeneration, Plasticity, Repair and Therapy

Lynne Weaver

Ion Transport in Gametes and Reproductive Epithelia

Patrick Y.D. Wong and Sylvie Breton

Somatic Sensation During Movement and Its Role in Autonomic Control

Bill Yates

Experimental Biology 2001

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Tentative Schedule of Sessions

Saturday, March 31, Morning Session

Integrative Approaches for the Study of Physiological Function in Genetically Altered Mice

J.N. Lorenz and D.L. Mattson

Refresher Course in Endocrinology: Endocrinology in Modern Medical Curricula
Education Committee

R. Vari and A. Lechner

Saturday, March 31, Afternoon Session

Experimental Gene Delivery and Therapy: A Tutorial
C.H. Gelband and C.D. Sigmund

Refresher Course in Endocrinology: Endocrine Case Studies
Education Committee

R. Vari and A. Lechner

Joint APS/AAA Symposium: Chronic Bowel Inflammation and Allergic Asthma: Similarities and Differences
Gastrointestinal Section
C.G. Plopper and H.E. Raybould

Russian and East-Block Physiologists: Recognition Because of Pre-World War II and Cold War Conditions
History of Physiology Group
C.M. Tipton and G.E. Folk, Jr.

A Call to Activism: Communicating About Science
W. Talman

Microcirculatory Society President's Symposium: Signaling Mechanisms of Nitric Oxide Synthase
Microcirculatory Society
W. N. Durán

Microcirculatory Society Young Investigator Award
Microcirculatory Society
S. Kanwar

Sunday, April 1, Morning Session

Tissue Engineering: Opportunities and Challenges
R.M. Nerem

Interplay Between Nitric Oxide and Hemoglobin: Current Concepts
R.P. Patel and M.B. Grisham

Neurotransmitters in Cardiovascular Regulation: Angiotensin
Physiology InFocus
R. Dampney

Programming of the Fetus in utero: Impact on Physiology in Adulthood
Endocrinology and Metabolism Section
E.D. Albrecht

Renal and Comparative Physiology of Urea Transporters
Renal Section
J.M. Sands and M.A. Knepper

Matching Technology to Education: How to Choose the Right Technology to Meet your Educational Needs
Teaching of Physiology Section
C. Cleland and J. Michael

Perspective on Problem Based Learning: Thorns and Roses
Special Focus Topic
P.K. Rangachari and A. Haramati

How to Write, Review, and Publish Manuscripts in APS and ASPET Journals
Women in Physiology Committee Workshop
K. Barrett

Nutritional Neuroscience
Association of Latin American Physiological Societies
L. Lima and L. Cintra

Understanding and Interacting with Industry in Scientific Research
Liaison With Industry Workshop
G. Reinhart

Sunday, April 1, Afternoon Session

Neurotransmitters in Cardiovascular Regulation: Glutamate
Physiology InFocus
F. Gordon

Tight Junctions: Convergence of Molecular and Physiologic Insights
Cell and Molecular Physiology Section
J. M. Anderson

Protein-Protein Interactions in Signal Transduction
Renal Section
E. J. Weinman and S. Shenolikar

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Lipid Mediators of Angiogenesis
American Federation for Medical Research
D. English

Engineering Islet Cells for Cell Therapy of Diabetes Mellitus
Sociedad Española Ciencias Fisiológicas
B. Soria and C. B. Newgard

Monday, April 2, Morning Session

Vagal Mechanisms of Visceral Sensation: Emerging Concepts
C. M. Blatteis and H. E. Raybould

Neurotransmitters in Cardiovascular Regulation: Nitric Oxide
Physiology InFocus
D. Bredt

Genetic Modification of Calcium Handling Proteins in Heart Disease: Insights, Roadblocks and Potential Therapies
Cardiovascular Section
J. M. Metzger

How Does the Brain Understand Muscle Mechanics?
Central Nervous System Section
T.R. Nichols and J.C. Houk

Life, Sex and Death: The Physiological Basis of Life-History Traits and Trade-Offs
Comparative Physiology Section
T. D. Williams and B. Sinervo

Metabolic Complications in HIV/AIDS
Endocrinology and Metabolism Section
K. Yarasheski

Physiological Genomics: Activity-Sensitive Gene Regulation in Skeletal Muscle
Environmental and Exercise Physiology Section
D. Hood

Intermittent Hypoxia: Cell to System
N.R. Prabhakar and E. Fletcher

How to Get Published in APS Journals
D. Benos

Lung Surfactant and Reactive Oxygen/Nitrogen Species: Antimicrobial Activity and Host/Pathogen

Interactions within the Lung
Respiration Section
J. Hickman-Davis

Type 1 Diabetes - Etiology, Prevention and Cure
American Federation for Medical Research
R. W. Furlanetto

Mechanical Modulation of Gene Expression in the Musculoskeletal System: From Nucleus to Organism
Biomedical Engineering Society
C. Rubin

Physiology, Pathophysiology, and Genetics of Body Weight/Adiposity Regulation
Society for Experimental Biology and Medicine
P. Havel and B. Horwitz

Monday, April 2, Afternoon Session

Neurotransmitters in Cardiovascular Regulation: GABA
Physiology InFocus
A. Sved

Gene Therapy for Cardiovascular Disease
Cardiovascular Section
V. Dzau and K.H. Berecek

Model Organisms: Functional Genomics of Membrane Transport
Cell and Molecular Physiology Section
K. Strange

Myosin Isoforms and Smooth Muscle Function: New Technology, New Questions
F. Brosovich and R.J. Paul

Effect of Changes in Blood Pressure on Renal Transporters
Renal Section
A. McDonough

Tuesday, April 3, Morning Session

The Early Impact of Diabetic Hyperglycemia on Renal and Cardiovascular Function
M.W. Brands and P.K. Carmines

Potassium Channels that Regulate Vascular Tone: Which are the Major Players?
Cardiovascular Section
D. Gutterman and A. Hume

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Structure and Gating of Epithelial Ion Proteins

Epithelial Transport Group

T. Kleyman

Adaptive Regulation of Epithelial Solute Transporters

Gastrointestinal Section

B.H. Hirst and R. P. Ferraris

The Role of Cell Membrane in Regulating Excitability and Contractility During Exercise and Fatigue

J.-M. Renaud and T. Nosek

The Role of the Amygdala in the Physiology of Emotion

Neural Control and Autonomic Regulation Section

R. Adolphs and W. Talman

DNA Microarray in Bioengineering and Physiology

Biomedical Engineering Society

S. Chien

Bioinformatics in Biology and Engineering

Biomedical Engineering Society

S. Subramaniam and J. Bassingthwaight

Tuesday, April 3, Afternoon Session

Scientific Professionalism: Professors or Pursurers of Truth?

Walter C. Randall Lecture in Biomedical Ethics

N.L. Jones

Neurohumoral Control of the Normal and Diseased Heart

Cardiovascular Section

J. Ardell

Combined Impact of Temperature and Exercise Stress on the Physiological Response to Toxic Agents

Environmental and Exercise Physiology Section

C. J. Gordon and J.J. Steinberg

Respiratory Physiology of the Pharyngeal Airway:

Modulation by Skeletal Muscle Activities, Central Nervous System State and Disease

Respiration Section

R.F. Fregosi and S.T. Kuna

Vasopressin: Integrative and Cellular Mechanisms of Release and Actions

Water & Electrolyte Homeostasis Section

J.T. Cunningham and C.D. Sladek

Regulation of Fluid and Electrolyte Balance in the GI Tract

American Federation for Medical Research

K.E. Barrett and R.H. Moseley

Neuronal Mechanisms Underlying Associative Learning

Sociedad Española Ciencias Fisiológicas

J.M. Delgado García and B.G. Schruers

Wednesday, April 4, Morning Session

Membrane Fusion

D. Brown

Mitochondria and Energy Metabolism in Heart Failure, Hypertrophy, and Remodeling

Cardiovascular Section

M. Portman

Endothelial Cellular Response to Altered Shear Stress

Respiration Section

A. B. Fisher and P. Schumacker

The Role of Mediators of Innate Immunity in the Inflammation Associated with Trauma

American Federation for Medical Research

A. Nicholson-Weller

Calcium Regulation for Muscle Contraction

Association of Latin American Physiological Societies

C. Caputo

Genomics and Molecular Basis of Exercise and Environmental Physiology: Molecular Basis of Human Performance

US Army

C. Bouchard

Genomics and Molecular Basis of Exercise and Environmental Physiology: Molecular Response to Hypoxia

US Army

L. Sonna

Wednesday, April 4, Afternoon Session

Genomics and Molecular Basis of Exercise and Environmental Physiology: Molecular Control of Thermogenesis

US Army

P. D. Neuffer

Conferences

2000 APS Conference Baroreceptor and Cardiopulmonary Receptor Reflexes August 23-27, Iowa City, Iowa

Amidst the hustle and bustle of freshmen students' first week at the University of Iowa, the Society sponsored the 2000 APS Conference "Baroreceptor and Cardiopulmonary Receptor Reflexes" organized by **Mark Chapleau**, Chair. The conference was held at the Sheraton Iowa City Plaza Hotel and featured an in-depth exchange of ideas about the physiology of the baroreceptor and the cardiopulmonary reflexes and an assessment of their impact on systems of the body. The program content covered scientific questions ranging from studies of cellular and molecular mechanisms of mechano-electrical transduction to studies of baroreflex control in humans.

There was an internationally recognized and interdisciplinary group of investigators present, and interaction was enhanced by the presence of young scientists, students, and established investigators in the field of baroreceptor and cardiopulmonary receptor reflexes. The conference attracted 233 registrants, 29% of which represented young scientists, including 32 students and 36 postdoctoral registrants (Table 1). Sixty-one (26%) were APS members and 38 (16%) were not members of APS. Sixty-six (28%) represented invited speakers and session chairs.

The outstanding program consisted of 14 symposia, one Controversial Issues

and Hot Topics session, and 12 poster sessions that included a total of 114 poster presentations. The social program included an opening reception on Wednesday,

August 23 and the Conference Banquet and Awards Presentation on Saturday, August 26. Bob Dorr and the Blue Band provided entertainment after the awards presentation on Saturday, and attendees enjoyed dancing to a lively mix of blues and swing well into the evening hours.

Six awards were presented for best abstract presentation by a graduate student. The awardees received a cash prize and certificate presented during the banquet. They were: **Madhusudan Natarajan**, Northwestern University, "Functional differences in pharmacologically-induced models of sustained sympathoexcitation"; **Xiao-Hong Xia**, University of Nebraska, "Role of carotid body chemoreceptors in Cheyne-Stokes respiration and baroreflex function in heart failure"; **Yong-Chun Zeng**, University of Nebraska, "Morphological studies for immunohistochemical intensity of NOS isoforms in the carotid body of heart failure rabbits"; **Caroline J. Hoang**, University of Missouri, Columbia, "Expression of metabotropic glutamate receptors and the cellular effects of their activation in neurons of the nodose gan-



Mark Chapleau (center) presenting awards for best abstract to graduate students.

glia"; **Monica Akemi Sato**, Northwestern University, "Inhibition of commissural nucleus of the solitary tract reduces sympathetic nerve activity in spontaneously hypertensive rats"; and **Peter Larsen**, Michigan State University, "Coupling of arterial pulse and 10-HZ rhythm in sympathetic nerve discharge."

Vallie Holloway, Florida A&M, and **Martha Stella**, Dartmouth Medical School, were recipients of the APS Minority Travel Fellowship Award, supported by NIDDK and NIGMS to encourage participation of under represented minority students in the physiological sciences. The fellowship provides reimbursement of all expenses associated with travel to and participation in the conference. The recipient is

Table 1. Registration Statistics

	No.	%
APS Member	61	26
Non-member	38	16
Postdoctoral	36	15
Student	32	14
Invited Speaker	66	28
Guest	4	2
Total	233	100

Table 2. Distribution by Department of Submitted Abstracts

Department	Abstracts	
	No.	%
Physiology	29	25
Cardiology/CV Sciences	20	17
Medicine/Internal Medicine	10	9
Pharmacology/Toxicology	7	6
Biomedical Sciences	6	5
Kinesiology	6	5
Physiology/Biophysics	6	5

Conferences

matched with an APS member attending the conference who will offer guidance and make introductions to other scientists.

A total of 114 abstracts were submitted to the conference for poster presentation. Table 2 provides a distribution of abstracts based on submitting depart-

ment. Thirty-two percent of the total submitted abstracts had female first authors; 36% were from outside The Americas; 15% were from Brazil and 7% were submitted from US Government laboratories.

The Society and Organizing Committee gratefully acknowledge

financial support provided through generous educational grants from: AstraZeneca, Merck, National Institutes of Health-National Heart, Lung, and Blood Institute, and Pharmacia and Upjohn. ❖



Conference attendees dancing to Bob Dorr and The Blue Band.



Poster presentations at the conference.

2000 APS Intersociety Meeting The Integrative Biology of Exercise September 20-23, Portland, Maine

The turn of autumn leaves, crisp Maine air, and brilliant blue skies served as the backdrop for the Society's 2000 Intersociety Meeting on "The Integrative Biology of Exercise" organized by **Peter Wagner**, Chair. Held at the Holiday Inn by the Bay Hotel and Conference Center in Portland, Maine, the meeting continued the practice of selecting non-traditional venues, and attendees discovered the wonderful gem that is Portland, Maine.

This meeting is one of the very few focused meetings encompassing a critical mass on fundamental research in exercise physiology. It enables researchers from different disciplines to share their expertise, gain knowledge about research underway in the field of

exercise physiology and biology, and be exposed to methods used by researchers in related fields.

There was a highly recognized and interdisciplinary group of investigators present and interaction was enhanced by the presence of young scientists, students, and established investigators in the field of exercise physiology and biology. The conference attracted 459 registrants, 37% of which represented young scientists, including 119 students and 52 postdoctoral registrants (Table 1). One hundred thirty-six (30%) were APS members (including two retired members) and 83 (18%) were not members of APS. There were 58 (13%) invited speakers and session chairs and 11 (2%) guest registrants.

The program outline consisted of two concurrent sessions each morning, poster viewing and defending in the afternoon and evening, and two sets of two concurrent tutorials in the afternoon. In all, there were six symposium sessions, eight tutorial sessions, a roundtable session on the last day, and 15 poster sessions that included a total of 241 presentations. The social program consisted of an opening reception on Wednesday, September 20, a Lobster Bake on Peaks Island on Thursday, September 21, and the conference banquet, awards presentation, and lecture on Saturday, September 23.

The conference banquet lecturer was Astronaut James A. Pawelczyk from
(continued on page 492)

Conferences



Astronaut James Pawelczyk, Craig Horswill, Tanya Gisolfi-McCready, and Peter Wagner.



Conference participants enjoying a lobster bake.

(continued from page 491)

Pennsylvania State University. He presented humbling slides of earth viewed from space and detailed the physical rigors of training for space flight and the difficulty in designing experiments in such a challenging environment.

The Carl V. Gisolfi Student Awards for Research in Exercise Science, sponsored by the Gatorade Sports Science Institute, were provided in memory of Carl V. Gisolfi, a distinguished researcher, and respected member of the Society and organizing committee, who passed away on June 2, 2000. The awards presentation was made particularly meaningful by a moving and powerful speech from Gisolfi's daughter, Tanya, who spoke of her father's strong sense of integrity that spilled over into all areas of his life, including his research. She encouraged the awardees to keep integrity at the forefront while reaching for their dreams and provided a model to follow in her father. She pre-

Table 1. Registration Statistics

	No.	%
APS Member	134	29
Retired Member	2	.4
Non-member	83	18
Postdoctoral	52	11
Student	119	26
Invited Speaker/Chairs	58	13
Guests	11	2
Total	459	100

sented the following 21 awardees with a certificate and cash prize:

David L. Allen, University of Colorado at Boulder, "Transcriptional regulation of the adult skeletal fast myosin heavy chain promoters"; **William George Aschenbach**, Joslin Diabetes Center, Boston "The muscle specific PP1G is essential for exercise-induced glycogen synthase activation"; **Raynald Bergeron**, Yale University, "Chronic activation of AMP-activated protein kinase promotes mitochondrial biogenesis in rat skeletal muscle and improves glucose tolerance"; **Pauline L. Entin**, University of California, San Diego, "Effect of age on vascular endothelial growth factor receptor mRNA expression in rat skeletal muscle"; **Jennifer A. Fogarty**, Texas A&M University, "Size-dependent responses of coronary arteries to adenosine and exercise training in collateralized hearts"; **Julia M. Giger**, University of California, Irvine, "Regulation of β myosin heavy chain promoter activity varies in skeletal muscles in response to different load stimuli"; **Craig Goodman**, Victoria University, Melbourne, Australia, "Myosin heavy chain expression and EC-coupling in mechanically skinned muscles fibres of the rat"; **Jason J. Hamann**, Veterans Administration Medical Center, Milwaukee,

"The effect of epinephrine on net lactate uptake by contracting skeletal muscle"; **Richard A. Howlett**, University of California, Davis, "Differential fatigue rates of muscle fiber types in response to hypoxia"; **Kimberly Ann Huey**, University of California, Irvine, "In vivo regulation of type I myosin heavy chain gene expression in the soleus of spinal cord isolated rats"; **Kevin M. Kelley**, University of California, San Diego, "Metabolic fate of lactate in resting and contracting skeletal muscle during elevated lactate concentration"; **Timothy J. Koh**, University of Michigan, "A single bout of conditioning protects mouse skeletal muscle from contraction-induced injury"; **Suzanne Kohin**, University of California, San Diego, "Preconditioning improves function and survival of isolated single muscle fibers during severe hypoxia and reoxygenation"; **Ingrid Marchand**, University of Guelph, Ontario, "Electron microscopic

Table 2. Distribution by Department of Submitted Abstracts

Department	Abstracts	
	No.	%
Physiology	48	20
Biology/Biological Sciences	30	12
Exercise/Sport Science	29	12
Kinesiology	22	9
Medicine/Internal Medicine	12	5
Cardiology/CV Medicine	7	3
Physiology/Biophysics	4	2

Conferences



Tanya Gisolfi-McCready and Craig Horswill present certificates and awards to graduate students.



Tanya Gisolfi-McCready and Craig Horswill present certificates and awards to graduate students.

analysis of subcellular muscle glycogen distribution during recovery from exercise”; **Todd Miller**, Texas A&M University, “Simulated microgravity induces alterations in skeletal muscle collagen”; **Ivan Mark Olfert**, University of California, San Diego, “Thrombospondin-1 gene expression in

skeletal muscle following exercise training in room air and chronic hypoxia”; **Kristian Overgaard**, University of Aarhus, Denmark, “Lactate protects contractility in muscle exposed to high extracellular K^+ ”; **James W.E. Rush**, University of Missouri, Columbia, “High fat diet and exercise training alter

endothelium-mediated dilation and caveolin-1 and eNOS protein levels in porcine coronary arterioles”; **Gregory Steinberg**, University of Guelph, Ontario, “Chronic leptin treatment increases free fatty acid oxidation and triacylglycerol utilization in rat soleus muscle”; **Michael E. Tschakovsky**, Mayo Clinic and Foundation, “Vasoconstrictor effect of endogenous norepinephrine release is blunted in exercising human forearm”; **Brian Wamhoff**, University of Missouri, Columbia, “Exercise training attenuates endothelin induced proliferation and nuclear calcium signaling in coronary smooth muscle”.



Tanya Gisolfi-McCready and Peter Wagner introduce some conference attendees.

Darleen Sandoval, Arizona State University, and **Maurice Williams**, University of North Texas Health Sciences Center, were recipients of the APS Minority Travel Fellowship Award, supported by NIDDK and NIGMS to encourage participation of under represented minority students in the physiological sciences. The fellowship provides reimbursement of all expenses associated with travel to and participation in the conference. The recipient is matched with an APS member attending the conference who will



Tanya Gisolfi-McCready and Craig Horswill presents certificates and awards to graduate students.



Poster presentations at the conference.

Conferences

offer guidance and make introductions to other scientists.

A total of 241 abstracts were submitted to the conference for poster presentation. Table 2 provides a distribution of abstracts based on submitting department. Twenty-eight percent of the total submitted abstracts had female first

authors, 21% were from outside The Americas, and 4% were submitted from US Government laboratories.

The Society and Organizing Committee gratefully acknowledge financial support provided through generous educational grants from National Institutes of Health-National Institute of

Arthritis and Musculoskeletal and Skin Diseases, Gatorade Sports Science Institute, Knoll Pharmaceutical Company and, Mallinckrodt, Inc./Nellcor Oximetry.

A Matter of Opinion

Heard It Through *The Grapevine (TX) Post-Dispatch!*

Okay, maybe you didn't hear about the American Physiological Society or the Integrative Biology of Exercise meeting in the *Grapevine* newspaper. However, you might have read about us in the *Kansas City Star*, *Orange County (CA) Register*, *Anchorage Daily News*, or the *Omaha World-Herald*, just to name a few. Not only that, the Society and meeting were also featured in *The Lancet*, *Medscape*, *HealthScout*, *Reuters Health*, as well as a number of media outlets. Additional stories will be appearing in the coming weeks in *Prevention*, *Men's Health*, *Health*, and *Fitness* magazines.

One might ask what stimulated the media interest in the APS and the Integrative Biology of Exercise. The obvious answer is that the Society worked to make it happen. In the Society's 2000 Strategic Plan, the Goal listed under Advocacy and Public Policy was "to develop a dynamic advocacy program with strong member involvement to educate and inform the public, the government, and other key audiences about the importance of physiology and the critical role of animal research." To accomplish that goal, it was proposed that the Society establish a communications/public information office to facilitate the dissemination of information about physiology and the Society.

The Society's first effort to promote the science of physiology occurred in conjunction with the Integrative Biology of Exercise meeting held

September 20-23, 2000 in Portland, Maine. APS hired Donna Krupa, Krupa Company, who worked with the Society to identify worthy presentations for information dissemination. The goal was to create media and public awareness about the relationship between physiology and exercise. In order to tie the meeting to an existing news hook, the Krupa Company built the outreach campaign around the Summer 2000 Olympics that were being held in Sydney, Australia.

Fifteen "hot pick" releases were created and given headlines for the topic and its lead presenter. Each release was approved by the presenter and sent to the media electronically and by fax, and follow up pitch calls were made. The releases were also posted to a newly created APS "Press Room" at http://www.the-aps.org/meetings/aps/press_room.htm.

As a result of the press releases, 18 interviews were arranged between presenters and the media, including interviews with ReutersHealth, CBS Health Watch, *Kansas City Star*, *Prevention*, *Men's Health*, *Runners World Magazine*, and *Health* magazines. Seven stories were fed by ReutersHealth news service to their 1100+ news outlets across the nation, and stories also appeared on the *Lancet*, *Medscape*, and Yahoo websites.

The success of the media outreach effort could not have been realized without the help of those who volunteered to help with the inaugural event.

The Society greatly appreciates the cooperation of the following individuals for taking time from their hectic schedules to participate in interviews that made the Society's efforts a success: **Carolyn Dennehy, Kenneth Caidahl, Timothy McConnell, Loretta DiPietro, James Barnard, Rick Roberts, Harold McLaughlin, Jim Pawelczyk, Sandra K. Hunter, Bruce Craig, Martin Frank, Anne B. Loucks, Tuomo Rankin, and Lincoln Ford.**

APS Founders Bowditch, Chittenden, Curtis, Martin, and Mitchell had the luxury of time to reach the public with news of physiology and its breakthroughs. By contrast, APS today is confronted with a round-the-clock worldwide audience filled with an insatiable hunger for information.

More than ever, media coverage creates perceptions, and through the media, information can be communicated more rapidly and more widely than ever before. The importance of an issue is defined by amount of media coverage it receives. APS believes the public should understand the valuable role that our science and scientists play in their lives and will use the media to communicate these messages. Over the coming months, APS will be developing a communications program designed to address the needs of the public and our discipline.

Martin Frank
Executive Director

APS Participates in SACNAS 2000 Conference

The 2000 Annual Convention of the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) took place on October 12-15 in Atlanta, GA, with the APS Education Office in attendance as an exhibitor and K-12 workshop sponsor. The event attracted nearly 2000 Latino and Native American science students and professionals, 100 K-12 educators of underrepresented minority students, and 140 exhibitors.

APS' presence at SACNAS comes about because of a variety of Education Office programs designed to encourage all underrepresented minorities, including Latinos and Native Americans, to pursue careers in the physiological sciences. The APS/NIDDK Minority Travel Fellowships allow outstanding young scientists to attend APS conferences and the Experimental Biology meeting; Porter Minority Fellowships in Physiology support career training; and the Explorations in Biomedicine Summer Research program places Montana science teachers of Native Americans into the labs of APS members each summer to do research work,

after which they develop their own inquiry-based classroom activities for publication on the APS website.

SACNAS organizers planned symposia, workshops, keynote, poster sessions, exhibits, and cultural events with the ultimate goal of equipping underrepresented minority students for success in science careers. For students, there were sessions designed to build professional development skills, enhance understanding of the effect of science research on Latino and Native American cultural issues, and provide updates on the latest in cutting-edge research. For K-12 math and science teachers of Latino and Native American students, SACNAS presented a range of workshops offering training in the use of inquiry-based classroom activities in science and math.

The APS exhibit booth provided a variety of materials aimed at both the students and the K-12 educators in attendance at SACNAS. Information on careers in physiology, APS minority fellowships for students pursuing degrees in physiology, APS website resources, and K-12 programs and

teaching resources were highlighted.

The APS K-12 workshop, "Physiology of Fitness: A Hands-On Exploration of the Effects of Exercise on Respiration, Heart Rate, and Blood Flow," was presented by APS Explorations in Biomedicine program participants, including APS member **William Galey**, PhD, of the University of New Mexico School of Medicine, and science teachers **Kathy Knudson** of Polson Middle School, and **Mary Alice Thomas** of Polson High School, Polson, MT. Knudson, Galey, and Thomas modeled the teaching of a guided-inquiry activity focusing on factors that affect blood flow and blood pressure from The Physiology of Fitness, a teaching module developed by an APS Local Outreach Team of science teachers and APS physiologists.

For more information about APS Education Office programs and resources, please see the APS website at <http://www.the-aps.org/education.htm> or contact Marsha Lakes Matyas, PhD, APS Education Officer, at mmatyas@aps.faseb.org or (301) 530-7132. ❖



Kathy Knudson, William Galey, and Mary Alice Thomas modeled the teaching of an activity from a module developed by science teachers and APS physiologists.



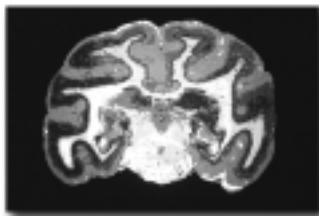
Kathy Knudson watches as SACNAS participants test an activity related to viscosity and blood flow.

Undergraduate Summer Research Fellowship - 2001

Application Information:

<http://www.the-aps.org/education/ugsrif/index.html>

Deadline: Friday, January 26, 2001



The American Physiological Society (APS) is accepting applications for the Undergraduate Summer Research Fellowships for the summer of 2001.



The APS Undergraduate Summer Research Fellowships program will fund 12 fellowships during the summer of 2001 to support full-time undergraduate students to work in the laboratory of an established investigator. The intent of this program is to excite and encourage students to pursue a career as a basic research scientist. Faculty sponsors/advisors must be active members of the APS in good standing.



The Fellowships will provide:

- \$2,000 summer stipend to the student (10 weeks support);
- \$500 grant to the faculty sponsor/advisor; and
- up to \$800 travel award/reimbursement to the student so that he/she may attend and present their data at the Experimental Biology 2002 meeting.



Application Instructions:

Complete application information and form are available on the APS website at: <http://www.the-aps.org/education/ugsrif/index.html>, or by calling the APS Education Office at 301-530-7132. **Completed application forms and required materials must be received by the APS Education Office no later than Friday, January 26, 2001.**

Applications received by the APS after January 26th will not be reviewed. Award recipients will be notified by March 1, 2001 for the funding of the Fellowships for the summer of 2001. All applications will be reviewed, evaluated, and ranked by the APS Careers Opportunities in Physiology Committee. Decisions will be final.



The American Physiological Society, Education Office
9650 Rockville Pike, Bethesda, MD 20814-3991

Phone: 301-530-7132 • Fax: 301-571-8305 • Email: educatio@aps.faseb.org

Congress Delays USDA Consideration of Rats, Mice, and Birds Regulations

Two important developments took place in October with respect to USDA efforts to change the regulatory definition of "animal" under the Animal Welfare Act (AWA) during FY 2001. At issue is whether the USDA should add laboratory-bred rats and mice as well as birds to the list of species regulated under the AWA. Rats and mice are believed to account for 90-95% of the animals used in research.

The first development was that USDA reached an out of court settlement in early October in which it agreed to "initiate and complete a rulemaking on the regulation of birds, rats and mice within a reasonable time" if the Alternatives Research and Development Foundation (ARDF) would agree to drop its lawsuit seeking

to compel the agency to cover these species under the AWA. On October 6, 2000, US District Court Judge Ellen S. Huvelle indicated that the settlement was legally valid because it had been signed by both parties and agreed to allow the suit to be withdrawn. Judge Huvelle emphasized and the USDA confirmed that the agency had made a commitment only to go through the rule-making process, and that it was not a foregone conclusion whether or on what terms the USDA would regulate these species under the AWA.

The second development, which occurred at about the same time that the settlement was being reached, was made public shortly after the USDA-ARDF settlement was announced: On October 3, a House-Senate conference

committee agreed to an amendment to the USDA's FY 2001 funding legislation that prohibited the agency from changing its list of regulated species for one year. The legislation was subsequently signed into law on October 28. This amendment, which was added by Sen. Thad Cochran (R-MS) at the behest of the University of Mississippi Medical School, prohibits the USDA from spending any money to change the regulatory definition of animal under the AWA during the fiscal year that ends September 30, 2001. The research community sought this language because researchers were shut out from USDA settlement negotiations over the ARDF suit.

"The medical research community
(continued on page 500)

Program Announcement

Porter Physiology Fellowships for Minorities

Closing Date for New Applications: January 15, 2001

Announcement of Awards: May 20, 2001

Annual Stipend: \$15,000

Duration of Fellowship: 1 year with possibility of 2nd year of support

The Porter Physiology Fellowships for Minorities are open to underrepresented ethnic minority applicants (African Americans, Hispanics, Native Americans, Native Alaskans, or Pacific Islanders) who are citizens or permanent residents of the United States or its territories. Applicants must have been accepted into or currently be enrolled in a graduate program pursuing an advanced degree in the physiological sciences.

FOR AN APPLICATION CONTACT:

APS Education Office
9650 Rockville Pike
Bethesda, MD 20814-3991
(301) 530-7132
fax (301) 571-8305
educatio@aps.faseb.org
http://www.the-aps.org/education/minority_prog/porterfell.htm



Sponsored by: APS Porter Physiology Development Committee

(continued from page 499)

was totally excluded from the discussions on a matter that could have enormous impact on research progress,” APS President Gerald DiBona noted in a letter thanking Cochran for his action. “The APS is particularly grateful to you for acting to ensure that the USDA did not enter into a precipitous settlement that would have hindered research progress.

“Medical researchers support the humane care of the animals that are used to understand causes and possible cures for human disease,” DiBona stated. “Good animal care is important for its own sake as well as being an essential ingredient of good science.” The letter went on to explain that the guidelines and standards already in place to govern federally funded research with rats, mice, and birds include the Public Health Service (PHS) Policy on

Humane Care and Use of Laboratory Animals and the *Guide for the Care and Use of Laboratory Animals*.

Most of the medical research in this country is conducted at academic institutions that are in fact already subject to both the PHS policy and the AWA. Because of differences between the regulatory approaches taken under the AWA as compared with the PHS policy, many in the research community were concerned that the USDA settlement would require researchers and their institutions to comply with conflicting regulations and to fill out unnecessary paperwork. Both the PHS policy and the AWA regulations require institutions to establish an animal care and use committee (IACUC) to oversee the animal care program, inspect facilities, and review research protocols. However, there are sometimes differences between the husbandry standards man-

dated under the AWA and in the recommendations of the *Guide*. The AWA requires researchers to keep individual health records in some cases and to make annual reports of the numbers of animals used in painful and non-painful research. The USDA also conducts its own annual inspections of animal facilities.

“The research community is concerned because we do not want to see funds that were intended for medical research being spent instead on bureaucratic paperwork and record-keeping requirements,” DiBona told Cochran.

The one-year delay in USDA rule-making provided by the agriculture funding legislation gives the research community time to develop recommendations about what kind of framework can best assure high quality animal care without excessive regulatory burden. ❖

CSR to Initiate Study Section Design With Hematology

The Center for Scientific Review (CSR) provided an update in October on Phase 2 activities of the Panel on Scientific Boundaries for Review (PSBR). The second phase of this effort to revise the scientific review process at CSR involves designing study sections within the integrated review groups (IRGs) that were proposed in the first phase of the boundaries panel’s review.

The first IRG to be reorganized will be Hematology. A Steering Committee for the Hematology IRG has met, and its members are actively gathering names and recruiting scientists to serve on the Hematology Study Section Boundary (SSB) Team. This team is scheduled to meet during the next several months to design study sections within the Hematology IRG. This procedure tracks the plan set forth in the Implementation Plan for boundaries panel’s recommendations, which was posted to the CSR home page in June. (This update is available on the CSR

website at <http://www.csr.nih.gov/events.htm>.)

A Steering Committee will be appointed for 17 of the 24 IRGs proposed in the Phase 1 report of the Panel on Scientific Boundaries for Review. That Steering Committee in turn will appoint Study Section Boundaries Teams, ensuring that all stakeholders (e.g., scientists working in that field, CSR representatives, and other NIH staff) are appropriately represented. The Steering Committee itself will go out of business once the CSR Advisory Committee accepts the recommendations of its boundary teams.

The purpose of the boundary teams is to design new study sections. Last spring, CSR staff undertook a “mock referral” of all the applications that were reviewed for the May 2000 Council meetings to the 24 proposed IRGs. The Study Section Boundary Teams will use the abstracts from these applications to define specific study

sections within the proposed IRGs. It is anticipated that during this process there will be some changes in the IRGs themselves as well as the topics to be covered by each study section.

CSR anticipates that Study Section Boundary Teams for as many as three more IRGs will be initiated approximately every four months until teams have been established for all 17 of the IRGs that are going to be formed or reorganized. (Seven of the proposed IRGs were recently reorganized and will not be part of this process.) CSR estimates that each team will take about nine months to complete its work, but no more than six such teams will be active at any one time. The IRG Steering Committees to be appointed will be for Muscle, Bone, Connective Tissue and Skin; Oncological Sciences; and the Biology of Development and Aging. ❖

Lame Duck Congress to Finish NIH Spending Bill

Unable to reach final agreement on "must pass" spending legislation prior to the election, members of Congress went home to campaign with plans to return in mid-November to provide FY 2001 spending for the NIH and other government agencies. In keeping with the unusually contentious end of the 106th Congress, there was confusion even about the terms of the stopgap funding measure that would keep the remaining portions of the government operating in the absence of regular appropriations.

Although the funding increase for the NIH had not been considered one of the controversial elements of the Labor-HHS-Education spending bill, the decision to delay final action until a post-election lame-duck session injected an element of uncertainty into what many in the biomedical community hoped would be the third installment toward a five-year doubling of the NIH budget.

Areas of lingering controversy in the bill that covers the Departments of Labor and Education in addition to HHS, included how to address anticipated Labor Department ergonomic

standards for the workplace and funding levels for education programs. The last-minute failure of a compromise over a Republican initiative to block the issuance of ergonomic standards was blamed for the breakdown in efforts to complete the work of the 106th Congress.

However, even the apparently successful effort to resolve the education funding issue took its toll. Funding increases for education programs that were made to meet the demands of President Clinton and Democrats in Congress led Senate Labor-HHS-Education Subcommittee Chairman Arlen Specter (R-PA) to withdraw from negotiations over the bill in late October. Specter expressed concern about the growing price tag of the bill and turned the negotiations over to the full Appropriations Committee Chairman Ted Stevens (R-AK). Specter also said that he would not return as subcommittee chair next year.

NSF, VA Score Major Gain

Congress did succeed in completing action on FY 2001 funding for the

National Science Foundation and for VA Medical Research. The VA-HUD-Independent Agencies funding bill provided NSF with an increase of \$529 million or 13.6% over FY 2000. This represented the largest single increase NSF has ever received, according to the agency. The total included a \$391 million increase over FY 2000 for NSF's Research and Related Activities Account (RRA). The President signed the bill into law on October 27.

The VA-HUD funding legislation also provided \$351 million for VA medical and prosthetics research, an increase of \$30 million or 9.3% over FY 2000.

NASA's Office of Life and Microgravity Sciences would receive \$316.9 million under the VA-HUD bill. This is an increase of \$42.2 million or 14.5% over FY 2000. However, because of a variety of congressionally mandated earmarks and intra-NASA fund transfers, it is unclear what increase, if any, the NASA life sciences research grants program will actually receive. ❖

Cliffhanger Election Overshadows Congress

The presidential vote-counting drama in Florida overshadowed the mid-November lame-duck session of Congress, making quick resolution of FY 2001 spending issues impossible. On November 14, before departing for a trip to Asia, President Clinton signed a continuing resolution to keep the government operating for three weeks until December 5.

The uncertain outcome of the electoral standoff over the presidency combined with likely razor-thin Republican majorities in both the House and the Senate made predictions about the

107th Congress difficult to make. Although the winners in some congressional races are still in dispute, it seems likely that the Republicans will maintain control of the House with a narrow majority.

The Republican majority in the Senate had dwindled to 50-49, a loss of at least four seats. The final tally remained in doubt pending the outcomes both of the Senate race in Washington and the presidential election. In Washington, incumbent Republican Sen. Slade Gorton was holding a 5,000-vote lead over

Democratic challenger Rep. Maria Cantwell with some 600,000 absentee ballots were yet to be counted. If Cantwell were to overtake Gorton, the Senate would split at 50-50, but the Republicans would remain in the majority. That is because if Bush became President, Vice President Cheney would cast the decisive vote to elect the Majority Leader. On the other hand, if Gore became President, Sen. Joseph Lieberman would have to give up his seat, and the Republican governor of Connecticut would name his successor. ❖

Public Affairs

APS Urges the USDA to Refine Pain and Distress Categories

The USDA should make refinements to existing system of reporting pain and distress in laboratory animals but should not implement a regulatory definition of distress. This was the main thrust of detailed comments the APS provided to the USDA in response to the agency's Request for Comments on Definitions For and Reporting of Pain and Distress in Laboratory Animals. The comment period ended November 7.

In the letter, APS President **Gerald DiBona** urged the agency to make certain that its regulations are "simple to use and grounded in sound science" as well as consistent with the requirements of other oversight authorities such as the Public Health Service. "The USDA should not implement changes that will increase administrative costs and regulatory burden unless these changes provide meaningful improvements in animal welfare," DiBona wrote.

The USDA requested comments because the agency is considering the addition of a definition of distress to its Animal Welfare Act regulations. However, the APS opposed this step as unlikely to be helpful, especially given the definition that the USDA is currently considering. APHIS Deputy Administrator W. Ron DeHaven has said that the agency might administratively adopt the definition of distress on

an interim basis even while the lengthy rule-making process is still underway.

The APS letter noted that potential distress is one of the issues that institutional animal care and use committees (IACUCs) and peer review panels already address when they evaluate animal research protocols. "Adding a definition of distress may not enhance the ability to achieve this goal because there is no easy-to-use, 'one-size-fits-all' definition" of distress, DiBona wrote. "Distress is caused by an excess of physiological, psychological or environmental stress factors," but "the mere presence of stress should not be presumed to be an undesirable state" since animals can adapt to stress, and some stress responses actually help them to do so.

The USDA is also considering whether to change how institutions categorize and report the numbers of animals involved in painful experiments. The current USDA classification system requires institutions to report whether a procedure has the potential to cause pain and whether analgesics or anesthetics were administered. The APS recommended that the USDA refine those classifications so that they reflect actual rather than potential pain experienced by the animals and take into account the success of various drug

therapies and other techniques (tranquilizers, antibiotics, anti-inflammatory drugs, heating pads, training, and environmental enrichment) in alleviating pain and distress.

The APS expressed strong support for the role of the IACUC. "Decisions regarding pain and distress classification of protocols should remain in the hands of the IACUC," DiBona wrote. "A rigid system that assigns procedures to specific pain and distress categories will be less responsive both to the needs of animals and of science."

The APS questioned the value of statistics on numbers of animals in the various pain and distress categories that the USDA publishes each year. "The purpose of the AWA [Animal Welfare Act] is to promote animal welfare," the APS noted. "Although the use of pain and distress categories is helpful to IACUCs in evaluating protocols, there is no evidence that reporting these numbers to the USDA leads to improved animal welfare," the APS said in its letter.

The USDA will collect and analyze responses before proceeding with its rulemaking. The APS complete text of the comment letter is available on the APS website at http://www.the-aps.org/pub_affairs/issues/pa_pain_distress_apsltr.htm. ❖

Position Available

Faculty Teaching Position: St. George's University School of Medicine is a highly regarded international medical school located on the beautiful island of Grenada in the West Indies. As part of our pre-clinical curriculum we offer a comprehensive physiology course. As a University, we are committed to excellence in medical education and seek to hire an individual with excellent teaching credentials to participate in our physiology teaching program. Candidates should have a PhD and/or an MD degree and relevant teaching experience. The level of appointment and salary (US\$) are commensurate with experience and in line with those of

American universities. Applications are encouraged from individuals who are approaching retirement, from individuals planning for early retirement, or from younger faculty who are interested in a new life style and a new challenge. Interested applicants are encouraged to mail, fax, or email a letter of interest and curriculum vitae with the names of three referees to: Mrs. Florient Johnson, Faculty Recruitment Coordinator, St. George's University, Box 7, St. George's, Grenada, West Indies. Fax: 473-444-3618; email: fjohnson@sgu.edu. Closing date: **January 5, 2001**.

Positions Available

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]

Assistant Research Scientist: The Department of Internal Medicine, Pulmonary, Critical Care and Occupational Medicine Division, Gene Therapy Vector Core, University of Iowa College of Medicine, is seeking an Assistant Research Scientist to perform research in gene transfer for the treatment of inherited diseases with recombinant adeno-associated virus vectors. Programmatic areas of interest include vector development and applications for correction of brain disorders (such as lysosomal storage diseases, ALS, etc.), hematological disorders (e.g., factor VIII deficiency), and other inherited disorders. The title of Assistant Research Scientist requires that a person in this classification have the academic knowledge of a discipline generally associated with a doctoral degree or an equivalent professional degree, i.e., MD, DDS, or DVM. In addition, such a person will have demonstrated the ability to plan and execute a research study through some progressively responsible independent research work. Considerable experience (3-5 years) in virology is desired, particularly with attention to vector production, tissue culture, and recombinant DNA techniques. Please send resume and cover letter indicating job #44444 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]

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]

Animal Physiologist and Evolutionary Biologist: The Department of Biology at The University of Akron invites applications for two tenure-track positions at the rank of Assistant Professor to begin August 27, 2001. Salary is competitive, and significant research support is provided. Candidates must hold a PhD degree, and postdoctoral experience is preferred. Each candidate will be expected to develop an externally funded research program in his/her area of expertise, advise graduate students, and teach undergraduate and graduate courses. The University of Akron is one of the largest state universities in Ohio with about 23,500 students. For further information, visit the department's website at <http://www.uakron.edu/biology/>. Review of applications will begin **December 15, 2000**. Applicants should submit a curriculum vitae, a summary of teaching interests, a research statement, copies of recent publications, and three letters of recommendation to: Jerry Stinner, Chair, Department of Biology, The University of Akron, Akron, OH 44325-3908. The University of Akron is an Equal Education and Employment Institution.

Positions Available

Postdoctoral Fellow or Research Associate: Postdoctoral or Research Associate needed to work on plasticity in the visual cortex, using slices of rat and mouse cortex. For a description of the general area, see Visual Development by Nigel Daw. We have implicated NMDA receptors, metabotropic glutamate receptors, and protein kinase A in plasticity in the visual cortex, using monocular deprivation in whole animals. This leads to questions about the mechanisms involved, which need to be answered by experiments at a more cellular level, in some cases utilizing mutant mice. The general goal of the laboratory is to investigate mechanisms of plasticity, not confined to the three factors listed above, with a combination of the most appropriate techniques. The appointee will work in a small laboratory within the neurobiology community at Yale. This community is known for work on development in general, and the visual system in particular. Candidates need a PhD or MD. Experience in electrophysiology is essential, and experience with whole cell recordings is desirable. The position will be filled within the next six months. Salary will depend on background. Qualified candidates should send a CV and covering letter by mail or email to: Nigel Daw, Department of Ophthalmology, Yale University Medical School, 330 Cedar Street, New Haven, CT 06520-8061. Email: nigel.daw@yale.edu

Postdoctoral fellowship: A postdoctoral fellowship is available in the Department of Physiology, University of the Witwatersrand, Johannesburg, South Africa. Requirements: PhD or equivalent level of research or scholarship, in the past three years, and demonstrable skills within one of the research areas of the department. Research areas: cardiovascular pathophysiology, sleep, pain, temperature regulation, fever, ecophysiology, invertebrate metabolism, salt and fluid balance, and exercise physiology. Research model: human or animal. Job description: collaboration with staff in a research group to develop new research areas. The Department of Physiology of the University of the Witwatersrand is the largest and most productive physiology department in Southern Africa. It is well equipped and has access to excellent support facilities. The fellowship has a duration of one or two years and can start at any time of the year. Interested applicants are invited to contact: Prof. Helen Laburn; fax: +27-(0)11-643-2765; email: 057helen@chiron.wits.ac.za.

Research Physiologist: The Thermal and Mountain Medicine Division, US Army Research Institute of Environmental Medicine invites applicants for a Research Physiologist Position. Applicants should have a strong background in systems/integrative physiology; experience with molecular/genomics research and physiological simulation modeling are desirable. Applicants should have postdoctoral experience with a strong record of publications and grant writing. This is a civilian (contingent to six years) position that could become permanent; salary range of \$51,9898 to \$80,367 depending on qualifications. The successful candidate will develop a human research program regarding thermoregulation, physical performance, adaptations and maladaptations to cold exposure. Thermal and Mountain Medicine Division consists of approximately 50 scientists organized into program units studying Cold Stress Physiology, Heat Stress Physiology, Mountain Stress Physiology, Environmental Genetics and Environmental Pathophysiology. Women and minorities are strongly encouraged to apply. Send curriculum vitae to Dr. Michael N. Sawka, Chief, Thermal and Mountain Medicine Division, US Army Research Institute of Environmental Medicine, Kansas Street, Natick, MA 01760-5007. Tel: 508-233-5665; Email: michael.Sawka@na.amedd.army.mil.

Assistant or Associate Professor: Three tenure-track faculty positions for Assistant or Associate Professor are available in the Department of Neuroscience and Physiology, State University of New York- Upstate Medical University. The department is rebuilding; its new focus will be developmental neurobiology. Researchers with interests in cell fate, neurogenetics, neuro-oncology, and plasticity are particularly encouraged to apply. Successful candidates must have proven record of research productivity. They are expected to establish independent, extramurally supported research programs and to participate in medical/graduate education. The local neuroscience community is interactive and multidisciplinary, having strengths in sensory systems and the molecular bases of disease. These positions offer possibilities of interdisciplinary interactions with faculty in basic and clinical science departments, Syracuse University, the Syracuse Veterans Affairs Medical Center, and a nascent Neurosciences Institute. Candidates should send curriculum vitae, statements of research and teaching experience, and the names of three references to: Michael W. Miller, Chair, Department of Neuroscience and Physiology, SUNY-Upstate Medical University, 750 East Adams Street, Syracuse NY 13210. Review of applications will begin **November 1, 2000**, although later applications will be considered until the position is filled. Applications from women and minority candidates are especially welcome. [EOE/AA]

Positions Available

Des Moines University Des Moines University Osteopathic Medical Center

Chairperson, Physiology-Pharmacology Department:

Des Moines University Osteopathic Medical Center invites applications and nominations for a discipline head for the combined physiology-pharmacology department. This department has responsibility for teaching a systems-based curriculum to students in the osteopathic medicine, podiatric medicine, physician assistant, and physical therapy programs. The department seeks a dynamic leader who will continue the department's excellence in medical education while developing the growth of scholarly activities. The successful candidate will have a doctoral degree in a relevant discipline, have demonstrated accomplishments in research and department level administration, and be a skillful communicator on behalf of the department and the institution. Des Moines University is 102-year-old institution that prepares doctors and masters level practitioners. It is located on a quiet, 22-acre urban campus in a city of 350,000. Interested candidates should send a curriculum vitae, statements of research interests, a history of extramural funding, teaching/educational philosophy, and the names of three individuals capable of providing references regarding the candidate's abilities in teaching, research, and administration. Review of applications will begin immediately and continue until the position is filled. Please reply to: Dr. Bryan Larsen, Physiology Pharmacology Search Committee, Office of the University Research, Des Moines University Osteopathic Medical Center, Des Moines, Iowa 50312. [EOE]

Postdoctoral Positions: Two NIH-funded postdoctoral positions are available immediately to study microvascular physiology in the Department of Physiology at West Virginia University. The specific areas of focus are 1) the contribution of oxygen radicals to altered endothelial function associated with high salt intake and hypertension, 2) interactions between oxygen and nitric oxide in microvascular control, and 3) changes in microvascular function that accompany rapid network growth during juvenile maturation. Techniques used in our laboratory include intravital microscopy, the use of oxygen- and nitric oxide-sensitive microelectrodes, image analysis, Western analysis of protein expression in the microvascular wall, and the isolation and culture of microvascular endothelial cells. More information about the laboratory can be obtained by visiting our website: <http://www.hsc.wvu.edu/som/physio/boegehold.htm>. Interested individuals should send a curriculum vitae and contact information for 3 professional references to: Matthew A. Boegehold, PhD, Department of Physiology, PO Box 9229, West Virginia University Health Sciences Center, Morgantown, WV 26506-9229. Tel: 304-293-5240; fax: 304-293-3850; email: mboegehold@hsc.wvu.edu.

Biological Science Assistants: The US Army Research Institute of Environmental Medicine (USARIEM) in Natick, MA has multiple positions available for qualified Biological Sciences Assistants. USARIEM conducts basic and applied research concerning optimization of performance under stressful conditions and avoidance of associated medical problems. The positions require enlistment into the US Army for six years with the assignment at USARIEM, which is in the Boston suburbs. Educational requirement is a Bachelor's or Master's Degree in biology, physiology, microbiology, exercise science, nutrition, biomechanics or biochemistry. Applicants should have a history of high academic achievement and be highly motivated. Previous experience as a research technician employing procedures related to either human, animal, tissue and/or molecular research is desired. Benefits include student loan repayment of up to \$55,000, housing, medical care, graduate educational opportunities, as well as excellent research experiences in a variety of scientific disciplines, including environmental and exercise physiology, nutrition and metabolism, pathophysiology, genomics, and molecular biology. The open positions are located in the Military Performance Division, Military Nutrition Division, and Thermal and Mountain Medicine Division. Candidates can obtain further information by sending a letter of interest and resume or CV to: Dr. Kent B. Pandolf, Senior Scientist, US Army Research Institute of Environmental Medicine, Natick, MA 01760-5007. Tel: 508-233-4832; Email: Kent.Pandolf@na.amedd.army.mil.

Research Associate/Scientist: We are seeking a Research Associate/Scientist for the Division of Neonatology at Mount Sinai Medical Center, Miami Beach Florida. The research focus of the laboratory is directed toward understanding the mechanisms leading to hemodynamic changes resulting from periodic acceleration and the associated production of nitric oxide and other vasoactive substances. The candidate must have a strong background in cardiopulmonary physiology, and a biochemistry background is desirable. Small and large animal surgical skills are required. The candidate must have experience in hemodynamic measurements, biochemical techniques, and data analysis. Excellent writing skills are a necessity. Candidates with an MD, PhD, or DVM will be given preference. However, individuals with a Master's degree with significant training will also be considered. Salary is commensurate with experience. Send resume to: Jose A. Adams, MD, Division of Neonatology, 3-BLUM, Mount Sinai Medical Center, 4300 Alton Road, Miami Beach, Florida 33140. Email: tony@msmc.com; fax: 305-674-2306.

Positions Available

Assistant Professors: Due to concurrent retirements, the Biology Department invites applicants for four tenure-track Assistant Professor positions to begin August 1, 2001. Candidates must have a PhD (or equivalent degree) related to one or more of the instructional areas below and a strong commitment to undergraduate teaching and research: genetics, endocrinology, developmental biology, biology of aging, animal physiology, neuroscience/neurobiology, gross anatomy, human nutrition, human anatomy/physiology, evolution, or organismal biology (vertebrate, invertebrate, or entomology). Located near the Adirondacks in New York State, Utica College's Biology Department teaches undergraduate biology majors and undergraduate and graduate allied health science students. Postdoctoral and/or teaching experience is preferred but recent PhD's are encouraged to apply, and successful candidates will have the opportunity to help mold the future of this dynamic department. Send a letter of application, a curriculum vitae, and the names of three references by December 15, 2000 to: Dr. David L. Moore, Utica College of Syracuse University, 1600 Burrstone Road, Drawer 148S, Utica, NY 13502-4892. Email: dmoore@utica.ucs.edu. Minorities and women are encouraged to apply. [AA/EOE]

Senior Scientist/Principal Scientist: The R.W. Johnson Pharmaceutical Research Institute, located in Spring House, PA, conducts pharmaceutical research in therapeutic areas, including anti-infectives, central nervous system, dermatology, and oncology. Johnson & Johnson is currently seeking a Senior Scientist/Principal Scientist who can deliver results. The candidate must have technical and professional knowledge. Requirements include experience with animal physiology and pharmacokinetics, delivery of results, technical professional knowledge, decision making, innovation, and communication. Other necessary abilities are motivational fit, planning and organizing, adaptability, continuous learning, mentoring, interdependent partnering, and gaining commitment. Additionally, expertise in gastrointestinal inflammatory disorders (IBD, IBS, colitis, ulcerative colitis), knowledge of the functional nervous system of the gut, and knowledge of the mechanisms of model systems for gastrointestinal disorders with stress in peripheral tissue inflammation are required. Strong computer/data management skills are required. A PhD in pharmacology or a related discipline or equivalent work experience is required. As a valued team member, the successful candidate will receive a competitive salary and great benefits, including medical/dental, a 401(k), a pension plan, and a comprehensive wellness program. Please apply directly on-line at our web site <http://www.jnj.com> or forward a scannable resume, noting operating company as Pharmaceutical Research Institute and Req. Code 00-3294, to: Johnson & Johnson Recruiting, PO Box 16597, New Brunswick, NJ 08906-6597. Please note, resumes received electronically are reviewed within 24 hours. Mailed resumes are reviewed within 3 business days after receipt. R.W. Johnson Pharmaceutical Research Institute is an equal opportunity employer totally committed to diversity.

Senior Scientist/Principal Scientist: The R.W. Johnson Pharmaceutical Research Institute, located in Spring House, PA, conducts pharmaceutical research in therapeutic areas, including anti-infectives, central nervous system, dermatology, and oncology. Johnson & Johnson is currently seeking a Senior Scientist/Principal Scientist for the delivery of results. Candidates must have technical and professional knowledge, decision making and innovation skills. They should also have skills in good communication, motivational fit, planning and organizing, adaptability, continuous learning, and mentoring. Interdependent partnering and gaining commitment are important. Expertise in electrophysiology is required for this position. A background in ion fluxes assay technology, as well as ileal smooth muscle preparation, and gastrointestinal motility assays is necessary. Knowledge of the Ussing chamber, clamp technology, and secretion ion fluxes is required. Candidates must be able to

propose, validate new discoveries, and assess novel gastrointestinal therapeutics. Strong computer/data management skills are required. A PhD in cellular biology or electrophysiology is required. As a valued team member, the successful candidate will receive a competitive salary and great benefits, including medical/dental, a 401(k), a pension plan, and a comprehensive wellness program. Please apply directly on-line at our web site <http://www.jnj.com> or forward a scannable resume, noting operating company as Pharmaceutical Research Institute and Req. Code 00-0003303, to: Johnson & Johnson Recruiting, PO Box 16597, New Brunswick, NJ 08906-6597. Please note, resumes received electronically are reviewed within 24 hours. Mailed resumes are reviewed within 3 business days after receipt. R.W. Johnson Pharmaceutical Research is an equal opportunity employer totally committed to diversity.

Positions Available

Faculty Position in Physiology: The Department of Molecular Biology and Microbiology, University of Central Florida, invites applications for a nine-month, tenure-track faculty position at the Assistant/Associate Professor level. The successful candidate is expected to develop and maintain an extramurally funded research program in any area of molecular, cellular, or integrative mammalian physiology and participate in undergraduate teaching in human physiology. The selected candidate will also participate in the new interdisciplinary doctoral program in Biomolecular Sciences and will have an opportunity to collaborate with the faculty of the Center for Discovery of Drugs and Diagnostics (CD3). Applicants should have a PhD degree and preferably three years of postdoctoral training in relevant area of expertise. Applicants for the Associate Professor level are expected to have an extramurally funded research program and demonstrate excellence in research. Salary, laboratory space, and start-up funds are highly competitive. {{Department support facilities include subsidized animal housing, a state-of-the-art microscopy facility, new laboratory space, and BSL-3 laboratories in the soon-to-be-completed Biomolecular Sciences research building. The University of Central Florida with an enrollment approaching 35,000 students is a rapidly expanding comprehensive research-oriented state university located in one of the fastest growing metropolitan areas in the nation.}} Starting date for the position is August 2001. Review of candidates will begin on February 1, 2001. As an agency of the State of Florida, all application materials and selection procedures are available for public review. Applicants should send a curriculum vitae, a summary of present and future research plans, a summary of teaching interest, and the names of three references to: Ratna Chakrabarti, PhD, Chair Search Committee, Department of Molecular Biology and Microbiology, University of Central Florida, Bio 330, Orlando, FL 32816-2360. [AA/EOE]

Lecturer in Physiology: Applications are invited from graduates in medicine or physiological sciences for a Lectureship in the Department of Physiology at the University of Dublin, Trinity College, Dublin, tenable from October 1, 2001. Candidates should have demonstrable experience in both research and teaching and should hold a higher degree. The appointee will have a good knowledge of human physiology and will be prepared to teach cellular and organ system physiology at an undergraduate level, as well as undertaking research in the department. There are two experimentally based key research areas in the department: cellular communication (current themes include synaptic plasticity, neuronal aging, and development of neural pathways) and exercise science (current themes include cardiovascular control, biomechanics, and muscle function). It is anticipated that the appointee will bring personal expertise and interests that strengthen one or both of these existing key research areas, either directly or through facilitation of collaborative work. Salary scale: IR£19,427-IR£47,992 per annum. Appointment will be made at a level consistent with qualifications and experience to date. The post is available on a tenured basis but could be filled on contract for a period of up to five years, by agreement. For a medically qualified appointee who wishes to maintain a clinical input, opportunities exist for hospital affiliation. The departmental profile and a job description for the post may be accessed via the Internet at <http://www.tcd.ie/Physiology>. Further details of the appointment and the department may be obtained from Professor C. Bell (Tel: +353-1-608-1076; Fax: +353-1-608-1468; email:cbell@tcd.ie). Intending candidates are invited to submit a full curriculum vitae, to include the names of three referees and to arrive not later than Friday, **November 10, 2000**, to: Establishment Officer, Staff Office, Trinity College, Dublin 2, Tel: +353-1-608-1678; fax: +353-1-677-2169; email: recruit@tcd.ie; Internet: http://www.tcd.ie/Staff_Office. [EOE]

Animal Physiologist: The Department of Biological Sciences, Southern Illinois University Edwardsville invites applications for a tenure-track position at the Assistant Professor level. We seek applicants with broad training in animal physiology. The successful candidate will share responsibility for teaching an introductory animal systems course for biology majors, animal physiology, and will design an advanced course in animal physiology. Candidates will be expected to participate in non-majors courses in biology and should exhibit potential for independent and innovative research involving Master's and undergraduate students. Qualifications: a PhD in biology, zoology or animal physiology. Postdoctoral teaching and research experience

preferred. To apply send a letter of application, a statement of teaching philosophy, a statement of research interests, curriculum vitae, copies of all transcripts, and three letters reference to: CHAIR, Animal Physiologist Search Committee, Box 1651AP, Department of Biological Sciences, Southern Illinois University, Edwardsville, IL 62026. Review of applications will begin on **December 1, 2000** and continue until position is filled. SIUE is a comprehensive regional university located on a 2,660-acre campus in a semi-rural setting only 25 minutes from downtown St. Louis. The University is dedicated to excellence in undergraduate education. [AA]

Positions Available

Physiologist: A tenure-track position in physiology is available at Brigham Young University. Research area is open. Strong preference will be given to applicants who are members of the sponsoring church. Direct inquiries to Marjean_Garowski@byu.edu.

Faculty Positions: The Monell Chemical Senses Center, a multidisciplinary research center investigating all aspects of taste, smell, and chemical irritation, seeks applicants for faculty research positions in any of the following areas. 1) Development/regeneration of chemosensory systems: to complement existing programs and to initiate new studies on development and regeneration of chemosensory receptor systems at the molecular or cellular levels. Applicants should have experience with contemporary concepts and techniques necessary for studying development and regeneration. 2) Human sensation and perception: to conduct research on human olfaction, taste, or somatosensation. Applicants may have interests in psychophysics, cognitive processes, emotion, or food selection/preferences. 3) Integrative/behavioral neuroscience: to conduct research addressing relationships among the chemical senses, appetitive behaviors and autonomic function with an emphasis on central nervous system processes. A technical focus on neurochemistry and/or neuroanatomy is desirable. 4) Toxicology: to conduct studies of respiratory toxicology or neurotoxicology. Applicants should have an interest in the impact of environmental and occupational chemicals on the upper respiratory tract and/or the olfactory system. Candidates in any of these areas must have a PhD or equivalent degree and relevant postdoctoral experience but may not necessarily have had direct research experience with the chemical senses. Successful applicants will be expected to develop a strong, independently funded research program, while at the same time taking advantage of the interdisciplinary and collaborative environment offered by the Monell Center. Please send a brief description of previous and current research and a brief account of future research interests as these relate to the chemical senses; a complete curriculum vitae; funding history; and the names and addresses of three to five individuals willing to provide references to: Personnel Officer, Monell Chemical Senses Center, 3500 Market Street, Philadelphia, PA 19104-3308. We will begin considering applications on **December 15, 2000** and will continue to do so until the positions have been filled. All positions are available immediately. The Monell Center is an Equal Opportunity Employer and encourages applications by women and minorities.

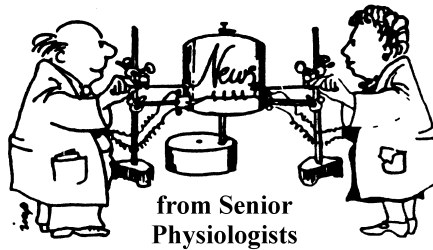
Postdoctoral Fellow: A Postdoctoral Fellow Position is available immediately in the laboratories of molecular physiology in the School of Medicine at Wright State University. The research involves studies of hematopoietic progenitor stem biology, cell specific markers, and gene expression. An MD or PhD degree with training in biochemistry, cell biology, or physiology and demonstrated proficiency in molecular biology, embryology and protein chemistry are required. Special skills in primary cell culture, handling animal embryonic cells, gene expression, immunocytochemistry, ELISA, Western blot, Northern Blot, Southern blot, PCR, cell analysis, and handling transgenic animals are also required. Previous experience in generation of specific monoclonal antibodies and hematopoietic stem cell cultures are preferred. Please send curriculum vitae and the names of three references to: Department of Physiology and Biophysics, Postdoctoral Fellow Position LL, Wright State University School of Medicine, 3640 Colonel Glenn HWY, Dayton, OH 45435-0001. First considerations to begin December 1, 2000 and continue until the position is filled. [AA/EOE]

Assistant Research Scientist: The Department of Internal Medicine, Cardiovascular Diseases Division, University of Iowa College of Medicine, is seeking an Assistant Research Scientist to perform basic and applied research and to advance knowledge of mechanisms and the effective interventional methods of ventricular tachycardia and fibrillation involved in the myocardial ischemia alone and reperfusion after ischemia both in in vivo and in vitro studies, so as to reduce the mortality resulting from arrhythmias. The title of Assistant Research Scientist requires that a person in this classification have the academic knowledge of a discipline generally associated with a doctoral degree or an equivalent professional degree, i.e., MD, DDS, or DVM. In addition, such a person will have demonstrated the ability to plan and execute a research study through some progressively responsible independent research work. A publication track record is desirable. Reasonable (1-3 years) research experience in the area of cardiac electrophysiology, cardiac pathophysiology and molecular biology is desirable. Knowledge in the theoretical and methodological aspects of cardiovascular pathophysiology and electrophysiology, as well as clinic cardiology, is desirable. Please send resume and cover letter indicating job #44456 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]

News From Senior Physiologists

Letters to Eugene Renkin

Nathaniel I. Berlin writes “I am a Professor of Medicine Emeritus at both Northwestern University and the University of Miami where I am a Senior Advisor to the Director of the Sylvester Comprehensive Cancer. I am also a member of the Dade County Health Policy Authority. Our principle objective is to develop policy that will bring medical care to all, in particular, the medically underserved. After my time at Berkeley in the Donner Laboratory with John Lawrence, a pioneer in bringing radioisotopes to biological and medical research, and where the leadership included Hardin B. Jones, a physiologist from where I learned much about the modeling of physiological systems, and from John Gofman who developed the concept of a low density and high density lipoproteins and their relationship to atherosclerosis, I then spent a year with Albert Neuberger at Mill Hill studying the biochemistry of porphyrin synthesis much in the experimental animal, then to the Navy, courtesy of the doctor draft during the end of the Korean War. There I was in the Analysis Branch of the Effects Division of the Headquarters of the Armed Forces Special Weapons Project, the Department of Defense agency responsible for the military component of atomic weapons. There I had a desk job, but did do some work on the effect of radiation on aging, and wrote a review paper on the military aspects of whole body radiation. In 1956 I went to the National Cancer Institute as Head of the Metabolism Service. We were five senior investigators and five juniors who had no defined mission, but were, in a sense, a clinical research unit with a strong physiological bent. My own research centered on the anemia of cancer, which led me to the study of bilirubin metabolism. There is where my research ended as I took up additional responsibilities as



the Clinical Director and then as one of the Institute's three scientific directors, with the title, Director of the Division of Cancer Biology and Diagnosis, which was not a particularly good way of describing the division's work. It included clinical and laboratory departments, including pathophysiology and molecular biology, both of which I established. I was the first Deputy Director and the second Director of the Sylvester Comprehensive Cancer Center at the University of Miami. This year will see the publication of three papers, a review of the use of radioactive phosphorus to treat myeloproliferative disorders, a review of an attempt to reduce lung cancer mortality by screening and the last that is truly physiological, a study on the relationship of body composition to blood volume.

“Cliff Barger of Harvard was a good friend. We often discussed the state of physiology as a science and from time to time what should be taught in medical school and what should be physiology's research thrusts. I can bring no real enlightenment to those subjects today that would be of benefit to the younger physiologists. Physiology as I studied it and to the extent I practiced it has been moved to the side in favor of the application of the reductionist theory, but the younger physiologists should be reminded that it is the totality of man that is important and that in comparable way that should be applied to the experimental animal, it is the whole animal and the study of physiological systems and their interaction that must be mandated and nourished and that is an important role for the Society and for the senior physiologists.”

James A. Will writes: “Thank you for your letter of congratulations on my upcoming 70th birthday.

“Officially I am retired, but to quote Judah Folkman, ‘Retirement is fine as long as it doesn't interfere with your work.’ I think I am lucky in that I have always been eager to come to work; to discover what new things are happening and the new ideas from young staff members and students that continually challenge the old ideas and capabilities of the older generation.

“After a Master's degree in Genetics and Animal Science here, I went into the Army for two years and then returned to more education in veterinary medicine at Kansas State. I practiced for about four years because I always admired the teachers I had who had this practical knowledge base. I came back to academia in the form of an NIH postdoc here at the University of Wisconsin in comparative cardiology, finished my PhD and had a joint appointment in the Department of Medicine in the Medical School and the department of Veterinary Science as we were called then.

“Well, 33 years later and a 10-year appointment in Anesthesiology with Craig Alexander's group, a nine-year stint as Director for the Graduate School of the Research Animal Resources Center for the UW System of 26 campuses along with my continuous appointment in this department, I have become Emeritus.

“I am still active. I teach part of an undergraduate physiology course, am on an NIH grant in biomedical engineering working on development of new catheters for radio frequency ablation of re-entrant arrhythmias and am actively pushing programs in teacher education in biology.

“Specifically, I was co-PI on six years of NIH Science Education Partnership Awards (SEPA) grants centered on animal biology and since then have had 4

News From Senior Physiologists

years of Eisenhower grants to extend the outreach. The present program is all physiology. We try hard to teach physiological principles rather than just activities programmed to meet the State and Federal standards. I have two colleagues, Bill Reddan who is also Emeritus and was in Jerry Dempsey's group and a neuroscientist academic staff member here, Tom Roberts. We have a two-week session in the Summer and then do one-day workshops all over the state along with classroom visits and visits of classrooms to the campus. We have just applied for a five-year SEPA grant to extend the program to two Summer sessions, one here in Madison and the other at another UW campus or an American Indian community college in the northern part of the state. We believe in teaching the principles or concepts that are transportable between systems because it forms a stronger base for the teachers for continued learning on their own and for teaching. We use exercise physiology as a base because we can use the students (teachers) themselves for many demonstrations of principles and use animals when this is not possible. Homeostasis is our over-riding concept.

"I have two hypotheses I base this latest venture on:

"1) The ability of students to learn is only limited by the teacher's understanding and ability to teach.

"2) If we begin teaching the basic principles of physiology in kindergarten as we have shown possible, when students graduate from high school, they would be better educated in understanding their bodies and health than our present college graduates.

"I probably will not be able to test the last hypothesis in my lifetime, but I hope to lay the foundation for the future and keep the pipeline of students fascinated by biology and physiology in particular full.

"My wife and I are proud of the direction our children have taken, too. I would have thought that seeing their father as an academic would discourage them from following in his footsteps, but no such luck. The oldest, Loma is a nurse with pulmonary as her interest and finishing her PhD at UIC in epidemiology of infectious disease, the second daughter, Leslie is the first woman department chair of the School of Dental Medicine at Harvard (Growth and Development that used to be Pediatrics and Orthodontics). Our son James is a senior lecturer at Burnley Horticultural College of Melbourne University. (I am off to visit him for the ninth time this month).

"My avocation is photography, particularly large format B&W. Yes, I have become digitized here, too. I traveled to Russia with a colleague this year and am actively learning Russian. Enough to keep me busy. I do exercise so I can keep this pace and to help reduce my intraocular pressure of my glaucoma; can still run 5km in reasonable time. Interestingly enough, my glaucoma has not progressed in more than the three years since diagnosis, in fact, there was some immediate improvement after a vigorous exercise regimen and only eye-drop treatment. Enough of that.

"Finally in this long letter probably longer than you wanted to get, I have to show appreciation to all of the graduate students all over the world who have helped mold my career and build my reputation on their subsequent successes. I also want to tell my colleagues that the one mentor I have had, usually at a distance, who helped me appreciate physiology more than anyone else is Bob Grover. His influence helped my career direction in physiology from my first meeting with him at a FASEB meeting in Atlantic City. I will always be grateful to him for his help and guidance."

Letter to Robert Berne

Paul Royce writes: "Somehow your letter was misplaced, perhaps because of the shock of falling into the category of Senior Physiologist. Who, me?"

"As for the senior label. I am in denial except when confronted by the reality of presbycusis, presbyopia, rusty joints, and four grandchildren. Nevertheless, I continue to ski (even some black diamonds) and bicycle.

"Physiologist is another matter. I haven't done bench research since 1969, but the four years I spent with George Sayers at Western Reserve branded me forever as a physiologist. Those were wonderful days in a young and exciting department surrounded by adventurous thinkers, many of whom (Brecher, Berne, Selkurt, Share, Johnson, Sperlakis) went on to chair other physiology departments. George was a tremendous influence and impressed on me the wisdom of a quotation from Francis Bacon: 'Reading maketh a full man; conference a ready man; and writing an exact man.' The departmental seminars were laden with ready men and George made me a fuller and more exact man. These three qualifications prepared me for my subsequent careers: academic internal medicine at Albert Einstein College of Medicine (1959-1969); clinical practice of endocrinology at the Guthrie Clinic, Sayre, PA (1970-1980); medical school administration (dean) at the University of Minnesota, Duluth (1981-1987); and hospital administration (senior vice-president for medical affairs) at Monmouth Medical Center, Long Branch, NJ (1987-1995).

"My various appointments have been exciting, frustrating and enlightening, but none as fulfilling as my brief career as a graduate student and investigator with George Sayers.

"I retired in 1995 but I maintain a consulting practice in healthcare research and evaluation in partnership with a medical sociologist, my wife for 43 years." ♦

Book Reviews

Hormones and the Heart in Health and Disease

Leonard Share (Editor)

Totowa, NJ: Humana, 1999, 258 pp., illus., index, \$99.50.

ISBN: 0-89603-726-6

This 258-page, hardcover book is a comprehensive review of the hormones and autocooids affecting the cardiovascular system. It is a collection of superb and thorough theses on 14 different endogenous hormones/autocooids (natriuretic peptides, adrenomedullin, urocortin, the renin-angiotensin system, adrenocortical hormones, catecholamines, vasopressin, insulin, kinins, endothelin, nitric oxide, eicosanoids, estrogen, and androgen),

which can have either beneficial or deleterious effects on the heart, as well as other organs. Each chapter typically reviews the historical perspective, molecular structure/phylogenetic information, cardiovascular actions and effects on other organs, therapeutic potential, and extensive bibliography. The authoritative review on each hormone is further substantiated by the discussion of the authors' own research. It is an excellent reference book for any basic scientist interested in cardiac physiology. For the clinicians, this book provides sufficient and detailed information to formulate potential clinical utility of these hormones. As a reviewer, I enjoyed the academic excellence of this book and learned a great deal. However, for the general audience, I

wonder if two chapters were added to the beginning and the end of the book, these may enhance the utility of the book. A brief introductory chapter by a basic scientist on the endocrinology and the physiology of the heart would be useful for those not in these disciplines. Finally, a summary chapter by an academic cardiologist reviewing the clinical importance of the redundancy of the different hormones effecting similar results and the therapeutic potential might interest greater audience. I hope that future edition would amplify the clinical relevance and value of the knowledge contained in the current edition. ❖

*Mun K. Hong
Cornell University*

Nutrition in Spaceflight and Weightlessness Models

Edited by Helen W. Lane and Dale A. Schoeller, CRC Series in Modern Nutrition.

Boca Raton, FL: CRC, 2000, 301 pp., illus., index, \$89.95.

ISBN 0-8439-2278-2

The CRC Series in Modern Nutrition is published for a scholarly audience and is designed to "explain, review, and explore present knowledge in recent trends, developments and advances in nutrition." In fact, this book represents the first attempt to summarize and to consolidate 38 years of essentially nutritional information into a single source pertaining to humans within a microgravity environment. The text is edited by two highly respected investigators in "space nutrition" and in energy expenditure and body composition, respectively, and consists of 13 chapters that have been authored by 23 individuals, many of whom are well known in the scientific community concerned

with microgravity research.

The introductory chapter (Lane and Schoeller) provides a cursory overview of the history of spaceflight and its environmental and physiological challenges with a limited amount of historical information on the nutritional planning, requirements, or expectations of previous Russian and American flights. The next two chapters relate to food systems needed for space and planetary flights (Bourland, Kloeris, Rice, Vodovotz) and to bioregenerative life support and the nutritional implications for planetary exploration. The former contains fairly detailed information on the dietary intakes of select astronauts associated with the Apollo, Skylab, and Shuttle missions and notes that most flight crews have not met the expected nutritional requirements that must be accomplished before long-term flights are undertaken. Unfortunately, this chapter did not contain any relevant information from Russian cosmonauts. The latter chapter (Wheeler, on bioregenerative life support) was well presented and documented but of more interest to botanists and plant physiologists than to human physiologists.

Gretebeck and Greenleaf next intro-

duce a summary chapter on ground-based models of weightlessness which discusses in descriptive and tabular form a wide assortment of the physiological effects of bed rest with head down tilt and water immersion. Aspects related to gender differences, posture, exercise, thermoregulation, and recovery are also mentioned as are animal models. Schoeller and Gretebeck follow with an interesting chapter on energy utilization and exercise in space flight. Besides health and performance considerations, the importance of this topic for logistic reasons is emphasized by examples with long-term flights where underpredictions could result in food shortages, whereas an overprediction could result in heavier pay loads and increased fuel expenditures. While detailed energy expenditure information is presented pertaining to gender, resting metabolism, physical activity, and EVA projects, there were no results from crew members who have been exposed to conditions of microgravity longer than 84 days (Skylab). As with most books concerned with space flight and its physiological effects, there is a

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(continued from page 511)

chapter concerned with fluid and electrolyte changes (Lane, Leach, and Smith). After reviewing the essentials of fluid and electrolyte distribution and regulation, the authors discuss and show in tabular form fluids (TBW, PV, extracellular fluids, water turnover) and electrolyte (sodium and potassium) changes with short-term simulated conditions and with microgravity conditions with the 84-day Skylab mission being the second longest in duration. Emerging from their discussions were recommendations that in-flight fluid intake be in excess of two liters/day with sodium ingestion being approximately 3500 mg/day. Because of the prevalence of muscle atrophy and the incidence of inadequate intake during the various missions, the authors believe the potassium consumption should be 3500 mg/day. Although a decrease in body mass generally occurs with exposure to microgravity, the chapter contained limited data from the Russian cosmonauts on this important topic that would be useful for predicting changes with flights to Mars and beyond. An interesting and informative chapter was the one concerned with the role of nutrition in protein and muscle homeostasis (Stein). After reviewing the essential of protein metabolism, the author presented animal and human data that demonstrated the negative effects of microgravity on changes in muscle mass, muscle volume, protein content, protein synthesis, and amino acid profiles. The chapter also summarizes energy balance data that clearly showed a negative nitrogen balance in select flights (12 to 84 days) and the presence of energy deficits in the SLS-1, SLS-2, and a three-month Mir mission. Presumably, these latter changes, which caused a decrease in protein synthesis, were the result of low energy intakes rather than increases in energy expenditures. Although the authors discussed the possibility that a combination of low energy intakes and high

energy expenditures could occur with subsequent flights, they felt the resolution of such a situation was not one that altered the existing protein requirements, the composition of the amino acids in the recommended diet, or in the use of amino acid supplementation. Weaver, LeBlanc, and Smith authored a comprehensive chapter on calcium and related nutrients in bone metabolism. With the aid of diagrams, the authors presented a succinct overview on calcium homeostasis and its importance in a microgravity environment. Using data obtained from previous and recent Russian and American flights, they effectively detailed how bone loss could occur at a rate of 0.4 to 1.0% a month depending upon which skeletal site was involved. They also discussed potential countermeasures being undertaken and the less than satisfactory results with exercise, synthetic calcitonin, calcium and phosphate supplements, and with bisphosphonate compounds. The occurrence of hypercalciuria was covered as were the potential risks for kidney stones. While attention was devoted to the importance of vitamin D, magnesium, and phosphorous for bone homeostasis, vitamin D was mentioned in more detail because long-term flights are associated with the depletion of body stores and the supplementation of vitamin D by tablets or diet has yet to be proven to be effective. The authors inform the reader that in 1997 the National Academy of Science established new nutritional daily requirements for adults living in a 1-G environment pertaining to calcium, phosphorus, magnesium, and vitamin D. Although indicating it will be difficult for crew members to meet the standards for calcium and vitamin D, they did not recommend that the 1997 requirements be changed.

Within the book is a chapter by Alfrey, Rice, and Smith concerned with iron metabolism and the changes in red cell metabolism. Its inclusion is justified by the incidence of space anemia in

astronauts and cosmonauts and by the importance of iron metabolism in the maintenance of red cell mass. After a brief overview and diagram of iron homeostasis, the authors cite Russian and American data that show changes in red cell number, red cell mass, intravascular iron, erythropoietin, incidence of neocytolysis, plasma volume, iron absorption, and ferritin. To counter these changes, the authors recommend following an iron intake of 10 mg/day, although they are uncertain if this value should be changed with long duration flights. They do not believe increases are needed for B₁₂, B₆, or folic acid. In chapter 10, Volpe, King, and Coburn discuss trace elements and the B vitamins. Although their discussion of the dietary importance of zinc, copper, iodine, fluoride, chromium, manganese, and molybdenum for conditions of microgravity was interesting, there were few studies cited that would support a change in the current requirements. A similar approach was followed in their discussion of the importance of the B vitamins in the diets of crew members which yielded a similar conclusion; namely, there was no convincing evidence that the "requirements for B vitamins are altered in microgravity." However, they did suggest that it would be prudent to provide a supplement equivalent to the RDA for the B vitamins because of the possibility of radiation exposure with the long-term flights. Pence and Yang did address the issue of radiation exposure in their chapter entitled "Antioxidants: Radiation and Stress." These authors detail in the text and in select tables the types and effects of radiation on living tissues and elaborate on the nature of the cellular damage that occur with exposure. They also discussed the formation and consequences of free radicals and the various antioxidant defenses of the body. Since it is expected that the assembly of the International Space Station will require 500 hours of extravehicular activity by astronauts,

Book Reviews

they are at risk of excessive radiation exposure. Hence, the topic of antioxidant nutrients such as vitamins A, E, C, beta-carotene, selenium, rutin, and folic acid, and their actions, are focal points of this chapter. Surprisingly, the text reveals there are few definitive studies that conclusive support the recommended intakes of these antioxidant nutrients for a space environment and more research is needed to secure such information. The final two chapters were brief in nature and pertained to the nutritional recommendations for space flight (McCormick) and to the nutritional research for the future of space-flight (Holick and Lane). The former lists the recommended amounts for caloric supply, fluid balance, macronutrients, minerals, fat soluble vitamins, water-soluble vitamins, and trace elements while the latter mentions models for future space flights before discussing research needs in food systems, energy, fluids and electrolytes, proteins and amino acids, body composition,

iron, trace elements, vitamins, antioxidants, and countermeasures. The last chapter is followed by an appendix that includes a listing of instruments available for research purposes on the International Space Station (ISS), daily nutritional recommendations for ISS missions lasting up to 360 days, an extensive listing of blood and urine values obtained during space flight (missions not identified), and a 12 day listing of menu to be used in the ISS.

The summary sections of the various chapters were revealing because the collective effect was that the current body of nutritional information was inadequate and incomplete for long-duration space flights that included Mars in their destinations. They were also revealing because they raise the question as to why in the past 38 years, hasn't NASA initiated the research projects that were being proposed by the various authors.

It was disappointing that the editors did not include a chapter devoted to

aspects related to the digestion, absorption and utilization of nutrients in microgravity and that more authors did not cite or include results from Russian missions that lasted longer than the Skylab experiments. The coverage of a few subject areas such as fluids, electrolytes, and vitamins was redundant at times and the detailed numerical topical outline was more annoying than helpful. As a group, the chapters were well presented and documented although the number of references published in the late 1990's could have been higher and the number of citations to NASA internal documents could have been lower. Despite these concerns, I would strongly recommend the purchase of this book by physiologists and nutritionists who include microgravity in their instructional courses or to space scientists interested in becoming better informed on the nutritional aspect of space flights.

Charles M. Tipton
University of Arizona

Books Received

The Autonomic Nervous System in Health and Disease.
David S. Goldstein.

Monticello, NY: Dekker, 2001, 618 pp., illus., index, \$195.00.
ISBN: 0-8247-0408-8.

The Feeling of What Happens: Body and Emotions in the Making of Consciousness.

Antonio Damasio.
New York: Harcourt, 1999, 400 pp., illus., index, \$28.00.
ISBN: 0-15-100369-6.

Iron, Nature's Universal Element: Why People Need Iron & Animals Make Magnets.

Eugenie Vorburger Mielczarek and Bertsch McGrayne.
New Brunswick, NJ: Rutgers Univ. Press, 2000, 240 pp., illus., index, \$30.00.
ISBN: 0-8135-2831-3.

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.

Physiological Medicine: A Clinical Approach to Basic Medical Physiology.
Vishwanath R. Lingappa and Krista Farey.

New York: McGraw-Hill, 2000, 1008 pp., illus., index, \$39.95.
ISBN: 0-07-038128-3.

Obituary

Joseph R. Rodarte (1938-2000)

Joseph Robert (Joe) Rodarte, MD, of Houston, TX died on Wednesday, September 13, 2000, at the Methodist Hospital in Houston from pancreatic cancer. Rodarte, a third generation Texas physician, was born in Temple, Texas. His grandfather, Domitillo Rodarte, practiced in El Paso, Texas, and his father, Jose Gamma Rodarte was Chief of Medicine of Scott and White Hospital. Rodarte received his undergraduate education at Rice University and his medical degree from Harvard Medical School. He began his clinical training at Parkland Hospital, U.T. Southwestern Medical School in Dallas, and, after service in the US Air Force, completed his clinical training in Internal Medicine and Pulmonary Disease and his research training at the Mayo Clinic. He remained at Mayo, becoming Professor of Medicine and Physiology & Biophysics at the Mayo Medical School and Director of the Pulmonary Function Laboratories and Head of the Division of Thoracic Diseases Research at the Mayo Clinic. In 1998 he accepted the positions of Chief of the Pulmonary and Critical Care Section of the Department of Medicine at Baylor College of Medicine and Chief of the Pulmonary and Critical Care Service at the Methodist Hospital. He was Professor of Medicine and Molecular Physiology and Biophysics at Baylor and Adjunct Professor of Mechanical Engineering and Material Science at Rice University and Pulmonary Physiology at the U.T. School of Public Health.

Rodarte was internationally recog-



Joe R. Rodarte

nized for his research on respiratory function in health and disease. He received funding from NIH for 30 years. He was a member of numerous professional societies and also served on governing committees of the American Physiological Society, American Thoracic Society, American Heart Association, and on numerous advisory committees for NIH and other federal agencies. He was an editorial board member of the *Journal of Applied Physiology*, as well as Councillor and subsequent chair of the Respiration Section of APS.

Rodarte's intellect and ability to pinpoint the key elements of a scientific problem won him the admiration of investigators and students alike. The team of Hyatt, Rodarte, and Wilson "wrote the book" on the pathophysiology of COPD, and many of its chapters have become mandatory reading for those concerned with new treatment modalities such as lung volume reduction surgery. Rodarte's work on regional lung deformation is well known to

respiratory physiologists, yet there is no doubt that this work deserves to be discovered by clinicians

In science as well as in other walks of life, we tend to notice those who move us with bold ideas. Rodarte told his friends that his greatest satisfaction came from figuring out how the lung works and sharing his insights and infectious enthusiasm. He took pride in the young physicians, biologists, and bioengineers whom he attracted into pulmonary research, and he took pleasure in following their successes. Toward the end of his illness, when he was restricted to his home and unable to go to the lab, he continued to analyze data and meet with trainees. He explained that he did so not because he felt any compulsion to finish the work, but because it was fun.

Rodarte is remembered for his contributions to the field of respiratory mechanics and pulmonary medicine, for his insightful and constructive comments as a reviewer of scientific publications, for his support of ideas as member and chair of NIH study sections, for his advocacy of science education on all levels, for his commitment to clinical practice as a leader of academic pulmonary divisions, and for his skillful consensus building as a steering committee member of the National Emphysema Treatment Trial. But most of all, he is remembered for his playful spirit and his guiding touch as a friend and mentor. ❖

Jeff Fredberg

Rolf D Hubmayr

Mayo Clinic and Foundation

Recently Deceased Members

Daniel L. Gilbert
Bethesda, MD

Donald J. Reis
New York, NY

S. Marsh Tenney
Lebanon, NH

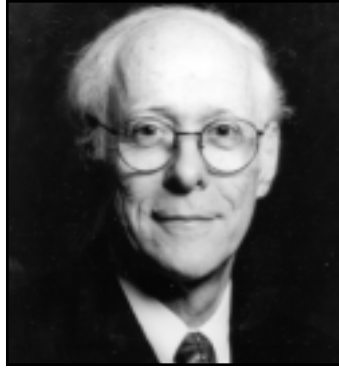
George A. Bray Receives Bristol-Myers Squibb/Mead Johnson Nutrition Award

APS member **George A. Bray**, whose basic and clinical research have significantly enhanced our understanding of the mechanisms that underlie the development of obesity, has been selected to receive the 20th Annual Bristol-Myers Squibb/Mead Johnson Award for Distinguished Achievement in Nutrition Research. Bray, who is Boyd Professor and professor of Medicine, Louisiana State University Medical Center and Pennington Biomedical Research Center in Baton Rouge, Louisiana, received the \$50,000 award and accompanying silver medallion at a dinner in Washington, DC, in October 2000.

Robert A. Burns, director, Research and Development, Mead Johnson Nutritionals, a subsidiary of Bristol-Myers Squibb Company, announced the selection of Bray. "George Bray is one of the few scholars recognized internationally for his life-long contributions to our understanding of obesity," said Burns. "In addition to his research, Bray has devoted his professional career to treating obese patients, and to training both basic scientists and clinical colleagues. We are very proud to honor him with this important award."

Bray has long advocated that obesity is a medical condition with multiple different etiologies, a position the majority of the medical community did not accept for many years. His research has emphasized the neurochemical integration of the control of food intake and energy expenditure within the central nervous system and he has demonstrated that there is a "receptor" system for fatty acids on the taste receptors and in the intestines.

Bray's description of the Autonomic Hypothesis to explain animal models of



George A. Bray

obesity provided some of the earliest recognition of the coordinate regulation of feeding behavior with the autonomic nervous system responses to feeding.

He was also one of the first to recognize the importance of glucocorticoid hormones in regulating body fat levels in animals and applied these concepts to show that visceral and abdominal fat could be manipulated in humans with anabolic steroids.

In animal studies, he and his colleagues have shown the importance of both peripheral and central sensory signals associated with polyunsaturated fatty acids and ketone bodies in affecting the preference for dietary fat and the susceptibility to the development of obesity on a high fat diet. Bray has identified two different central systems—the serotonergic system and the opioid system—that effect fat intake. Experimental studies suggest that manipulation of dietary fat might modulate weight change and improve the co-morbidities associated with obesity. Efficacy tests in humans offer the exciting possibility for reducing dietary fat intake in man.

As the first executive director of the Pennington Biomedical Center, from

1989 until his retirement from the post in 1999, Bray brought the Pennington Center international excellence in obesity and nutrition research, receiving a 1998-2006 Merit Award from the National Institutes of Health (NIH) for studies on Dietary Obesity.

He was principal investigator of the DASH Study (Dietary Approaches to Stop Hypertension), a diet high in fruits, vegetables, and low-fat dairy products now recommended by the Sixth Joint National Commission on Hypertension because of its public health importance.

In a subsequent DASH-Sodium Trial, his research team compared the DASH diet against the Control American diet at three levels of dietary sodium, showing a dose-response reduction in blood pressure as sodium decreased.

A third trial is currently evaluating the translation of the DASH Diet into a diet for the public. Bray has also led the center in the protocol development for a NIH-funded Diabetes Prevention Program now getting under way. Another multicenter trial, a Study of the Health Outcomes of Weight Loss (SHOW), is planned to test the hypothesis that weight loss will reduce the progression of detrimental health outcomes in diabetic patients.

The Bristol-Myers Squibb Unrestricted Biomedical Research Grants Program, initiated in 1977, currently provides no-strings-attached funding in seven medical research areas. The distinguished achievement award of \$50,000 is awarded annually in each of the seven categories, which include cancer, cardiovascular, infectious disease, metabolic, neuroscience, nutrition and orthopaedics research. ❖

Fung Receives National Medal of Science

The White House announced that Yuan-Cheng Fung, Professor Emeritus of Bioengineering and Applied Mechanics and founder of the Bioengineering Program at the University of California, San Diego (UCSD), received the President's National Medal of Science, the nation's highest scientific honor. Fung was recognized at an awards dinner December 1 in Washington, DC. The Medal was conferred by President Clinton.

In announcing the 12 Medal of Science honorees for 2000, President Clinton paid tribute to a group of scientific leaders who changed or set new directions in social policy, neuroscience, biology, chemistry, bioengineering, mathematics, physics, and

earth and environmental sciences. Fung is the first bioengineer to receive this most prestigious honor in science in this country. This year he is the only engineer receiving the Medal.

Fung has made outstanding contributions in bioengineering after an earlier illustrious career in aeronautical engineering. He is widely recognized as the father of biomechanics, establishing the fundamentals of biomechanical properties and behaviors of virtually every organ and tissue in the body. He has written several authoritative books on biomechanics that are used as textbooks around the world, in addition to books on solid mechanics and continuum mechanics. He adds the National Medal of Science to a long list of honors that

include the Founder's Award from the National Academy of Engineering in 1998, the Bioengineering Award from the Japan Society of Mechanical Engineering, the Timoshenko Medal and the Melville Medal from the American Society of Mechanical Engineers (ASME), the Landis Award from the Microcirculatory Society, the ALZA Award from the Biomedical Engineering Society, the Borelli Award from the American Society of Biomechanics, and the Lifetime Achievement Award from the Association of Chinese Scientists and Engineers of California. In 1986 the ASME established the "Y.C. Fung Young Investigator Award" in his honor.

APS Members Elected to IOM

On October 16, the Institute of Medicine (IOM) announced the election of 60 new members, raising the total active membership to 613. In addition, five people were honored by direct election to senior membership, bringing that roll to a total of 711. The number of foreign associates now totals 56 with the election of five this year.

Two APS members were elected to the active membership, including:

Edward D. Miller, MD, Dean of the

Medical Faculty, School of Medicine, Johns Hopkins University, and chief executive officer, Johns Hopkins Medicine, Baltimore, MD.

Wylie Vale, Ph.D., head, Clayton Foundation Laboratories for Peptide Biology, and professor, Salk Institute, La Jolla, CA.

In addition, **James C. Thompson**, MD, Ashbel Smith Professor of Surgery, Department of Surgery, University of Texas Medical Branch,

Galveston, TX, was elected to Senior Membership.

Current active members elect new members from among candidates chosen for their major contributions to health and medicine or to related fields, such as social and behavioral sciences, law administration, and economics. The Institute's charter requires that at least one-fourth of the members be drawn from other than the health professions.

Saxena Elected to Endowed Professorship



At the July 2000 meeting of the Board of Overseers of the Joan and Sanford I. Weill Medical College of Cornell University, **Brij B. Saxena** was elected the Harold and Percy Uris Professor of Reproductive Biology, effective August 1, 2000.

According to a letter sent to Saxena, his election to this endowed professorship was made in recognition of his expertise and research accomplishments in endocrine regulation and gonadotropins. ❖

People & Places

Gias Uddin Ahmmed has joined the Department of Physiology, Loyola University Medical Center, Maywood, IL. Ahmmed was with the Department of Cardiology, Internal Medicine, University of Cincinnati, OH.

Formerly with the West Roxbury VA Medical Center, Harvard Medical School, West Roxbury, MA, **Hamid I. Akbarali** has affiliated with the Department of Physiology, University of Oklahoma Health Science Center, Oklahoma City, OK.

Affiliating with the Department of Medicine and Molecular Physiology and Biophysics, University of Vermont, Colchester, VT, **Jason Bates** has moved from Meakins-Christie Laboratories, McGill University, Montreal, Canada.

Recently accepting a new post with the Division of Neurosurgery, Dalhousie University, Halifax, Nova Scotia, Canada, **Robert M. Brownstone** has moved from the Department of Surgery, University of Manitoba, Canada.

Jennifer M. Burns has joined the Department of Biological Sciences, University of Alaska, Anchorage, AK. Previously Burns was with the Institute of Marine Science, University of California, Santa Cruz, CA.

William Y. Chey has accepted the position of Director, Rochester Institute for Digestive Diseases and Sciences, Inc., Rochester, NY. Prior to his new position, Chey was with the GI Unit, Strong Memorial Hospital, Rochester, NY.

Affiliating with the Department of Health, Physical Education, Recreation and Sport, Mississippi State University, Mississippi State, MS, **Joseph A. Chromiak** has moved from the Department of Sport Health Science, Life University, Marietta, GA.

Cathy A. Davison has accepted a position with Harte-Hanks Interactive, Lake Katrine, NY. Prior to her new appointment, Davison was affiliated with the Center for Cardiovascular Sciences, Albany Medical College, Albany, NY.

Deborah M. Drechsler-Parks has recently moved to the California Air Resources Board, Research Division, Davis, CA. Prior to her new position, Drechsler-Parks was with the Research Division, California Air Resources Board, Sacramento, CA.

William Michael Foster has moved from the Department of Environmental Health Science, Physiology Division, Johns Hopkins University School of Hygiene and Public Health, Baltimore, MD to the Department of Medicine, Duke University Medical Center, Durham, NC.

Timothy P. Gavin has moved from the School of Medicine, University of California, San Diego, La Jolla, CA to the Department of Exercise and Sports Science, East Carolina University, Greenville, NC.

Felicia Greer has joined the Department of Recreation and Sport Sciences, Ohio University Eastern, Saint Clairsville, OH. Greer has moved from the Department of Human Biology and Nutritional Science, Guelph, Ontario, Canada.

Accepting a position with Monell Chemical Senses Center, Philadelphia, PA, **Charles Christopher Horn** has moved from the Center of Neurobiology and Behavior, Columbia University, New York, NY.

Formerly, **David L. Horwitz** was associated with Advanced Tissue Sciences Inc., La Jolla, CA. Horwitz is now Vice President of LifeScan, Inc., Milpitas, CA.

Sandra Lynn Hrometz has moved to the Department of Pharmaceutical and Biomedical Sciences, Raabe College of Pharmacy, Ohio Northern University, Ada, OH. Previously, Hrometz was with the Department of Anesthesia Research, Mayo Foundation, Rochester, MN.

Associating with the Department of Research, Resources Branch, Gerontology Research Center, National Institute on Aging, NIH, Baltimore, MD, **Magdalena Juhaszova** has moved from the Department of Physiology, University of Maryland-Baltimore, Baltimore, MD.

Harold G. Klemcke has moved from the Meat Animal Research Center, US Department of Agriculture, Clay Center, NE, and joined the US Army Institute of Surgical Research, Fort Sam Houston, TX.

Thomas R. Kleyman has joined the Renal-Electrolyte Division, University of Pittsburgh, Pittsburgh, PA. Prior to his new commitment, Kleyman was with the Renal Division, University of Pennsylvania, Philadelphia, PA.

Formerly, **John Paul Lavelle** was affiliated with the Department of Urology, University of Pittsburgh, Pittsburgh, PA. Lavelle is currently with the Department of Surgery, University of North Carolina at Chapel Hill, Chapel Hill, NC.

E. Douglas Lewandowski has accepted a position with the Departments of Physiology, Biophysics, and Medicine, University of Illinois at Chicago, College of Medicine, Chicago, IL. Prior to his new appointment, Lewandowski was with the Department of Radiology and Medicine, Massachusetts General Hospital, Harvard Medical School, Charlestown, MA.

People & Places

Having accepted a position with the Department of Physiology and Pharmacology, Downstate Medical Center, Brooklyn, NY, **William Winzer Lytton** has moved from the Department of Neurobiology, University of Wisconsin, Madison, WI.

Affiliating with SUNY Upstate Medical University, College of Medicine, Syracuse, NY, **Stephen E. Mercer** has moved from the Department of Biology, University of Texas at Arlington, Arlington, TX.

Accepting a position with the Department of Nuclear Medicine, National Institutes of Health, Bethesda, MD, **Roberto Maass-Moreno** has moved from Indiana University-Purdue University, Indianapolis, IN.

Andrew J. Messaros has accepted a position with the Department of Exercise Science, West Virginia University Morgantown, WV. Messaros was previously with the Department of Physical Therapy, Medical College of Ohio, Toledo, OH.

Sanjay Kumar Nigam has relocated from the Department of Medicine, Brigham and Women's Hospital, Chestnut Hill, MA to the Department of Pediatrics and Medicine, University of California-San Diego, La Jolla, CA, .

Accepting a position with the Department of Anesthesiology, Pennsylvania State University, Hershey, PA, **Hui-lin Pan** has left the Department of Anesthesiology, Wake Forest University, Winston-Salem, NC.

Nicola C. Partridge has accepted a new post with the Department of Physiology and Biophysics, UMDNJ, Robert Wood Johnson Medical School, Piscataway, NJ. Partridge was with the Department of Pharmacology and

Physical Science, St. Louis University School of Medicine, St. Louis, MO.

Steven H. Platts has moved to the Cardiovascular Research Center, University of Virginia Health Systems, Charlottesville, VA. Platts was with the Department of Medical Physiology, Texas A&M University Health Science Center, College Station, TX.

Joining the Department of Physiology and Biophysics, Faculty of Medicine, University of Calgary, Alberta, Canada, **Mark J. Poulin** has moved from the University Laboratory of Physiology, University of Oxford, Oxford, UK.

Having affiliated with the Weight Management Center, New Orleans, LA, **William J. Raam** has moved from the Harbor-UCLA Medical Center, Torrance, CA.

Recently affiliating with the Department of Genomic Pharmacology, Vertex Pharmaceuticals, Cambridge, MA, **Christopher P. Regan** has moved from the Department of Physiology, University of Virginia HSC, Charlottesville, VA.

Rolando Enrique Rumbaut has affiliated with the Department of Medicine and Pulmonary, Baylor College of Medicine, Hunter VA Medical Center, Houston, TX. Rumbaut has moved from the Department of Medicine, Pulmonary & Critical Care, University of Missouri-Columbia, Columbia, MO.

Mrinmoy Sanyal has accepted a position with Psoriasis Research Institute, Palo Alto, CA. Prior to his new appointment, Sanyal was with the Department of Pathology, Stanford University Medical Center, Palo Alto, CA.

Accepting the position of Vice-President of Research, the Department of Medicine, St. Michael's Hospital,

Toronto, Ontario, Canada, **Arthur S. Slutsky** has moved from the Department of Medicine, University of Toronto-Mount Sinai Hospital, Toronto.

James D. Stockand has joined the Department of Physiology, University of Texas Health Science Center, San Antonio, TX. Prior to his new assignment, Stockand was affiliated with the Department of Physiology, Emory University, Atlanta, GA.

Affiliating with the Department of Integrative Physiology, University of North Texas Health Science Center, Fort Worth, TX, **Johnathan David Tune** has moved from the Department of Physiology and Biophysics, University of Washington School of Medicine, Seattle, Washington.

Robert S. Turner has moved from the Department of Neurology, Emory University School of Medicine, Atlanta, GA to the Department of Neurology, University of California-San Francisco, CA.

Accepting a position with the Hospital Notre-Dame Du CHUM, Montreal, Canada, **Gerald Van De Werve** has moved from the Department of Nutrition, University of Montreal, Montreal, Canada.

Pompeo Volpe has accepted a position with the Department of Biomedical Experimental Science, University of Padua, Padua, Italy. Prior to his new position, Volpe was with the Institute of General Pathology, Padua, Italy.

Affiliating with the Department of Biological Sciences, Kent State University, Kent, OH, **Stephen C. Wood** has moved from Summa Health System Foundation, Akron, OH.

Announcements

Preparatory Course for AALAS Certification

You can learn the skills and techniques required to start a career in a research lab. This hands-on course is designed to prepare participants to work in a research institution where the handling, restraint, bleeding, and anesthetizing of laboratory animals is required. Through lectures, presentations, and hands-on laboratory training, participants will learn the principles and practices of lab animal science with emphasis on animal care and various research techniques.

This is a semester-long, undergraduate course that is being offered to continuing professional education students. It is an excellent preparation for American Association for Laboratory Animal Science (AALAS) Certification examinations. More than 95% of students who successfully complete this course also pass the Assistant Technician or the Technician certification test. College credit is not available to continuing professional education students. However, seven (7) Continuing Education Units (CEUs) and a certificate of completion will be awarded.

The class meets on Tuesdays and Thursdays from 6:10 pm - 8:50 pm (including laboratory time), January 16, 2001 through April 26, 2001.

Course Background

If you have an interest in animals, especially lab animals, then this is the course for you. You may be working in a laboratory with animals already or you may want to prepare for a career where you will need to know how to care for animals, as well as use them for research. Larry Katz, of the Cook College Department of Animal Science, has been teaching this semester-long class for 11 years to enthusiastic reviews by his students. Each year he extends the opportunity for a limited number of continuing education students to participate in the class through the Office of Continuing Professional Education.

Course Topics:

Overview of Research Using Animals
Animal Rights vs. Animal Welfare Regulations
Animal Classification and Scientific Terminology
Anatomy and Physiology
Dissection/History
Animal Handling
Animal Housing Equipment and Design
Animal Nutrition, Health and Disease
Pharmacology
Sanitation, Hygiene and Safety
Surgery

Registration Information:

The registration fee for this course is \$499 if you register before January 5, 2001. After that date, the fee will be \$529. Multiple registrants from the same company may register for a discounted fee of \$479 per person.

Three Ways to Register:

By Phone: (732) 932-9271, Mon.-Fri., 8:00 a.m. to 4:30 p.m. Please have your Master Card, VISA or American Express number ready.

By FAX: (732) 932-8726, 24 hours. Please include credit card information or a copy of your check, money order or purchase order.

By Mail:

Registration Desk
Office of Continuing Professional Education, Cook College
Rutgers, the State University of NJ,
102 Ryders Lane
New Brunswick, NJ 08901-8519

Specialized Neuroscience Research Programs

As part of its initiative to promote and enhance neuroscience research at minority institutions, the National Institute of Neurological Disorders and Stroke (NINDS), in collaboration with the National Center for Research Resources (NCRR), has funded three new Specialized Neuroscience Research Programs (SNRPs). The programs at the University of Alaska Fairbanks, Meharry Medical College, and Hunter College seek to encourage neuroscience graduate education among

minority students and to stimulate new research on brain and nervous system disorders affecting minorities.

NINDS' support for these and other SNRPs is part of a larger effort to improve the health status of minority Americans and eliminate healthcare disparities through the funding of new neuroscience research by and for minorities. The National Institute of Mental Health collaborated with NINDS on the University of Alaska Fairbanks program.

"The institutions we've chosen are specially prepared to educate and guide young minority scientists," said Alfred Gordon, Director of the Office of Special Programs in Neuroscience, NINDS, and lead administrator of the SNRP initiative. "Through these awards, NINDS helps to develop the careers of future neuroscience health professionals who can assist us in reducing disease disparities in populations at increased risk for disorders of the nervous system."

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Announcements

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Funding for the programs allows the institutions to build or enhance research facilities, to develop additional neuroscience educational programs, and to strengthen the research capabilities of faculty and students.

The University of Alaska Fairbanks SNRP will study neuroprotective adaptation to stress by focusing on the mechanisms in the brain associated with hibernation, cell death, neuronal regen-

eration, circadian rhythms, and thermoregulation. Meharry Medical College will examine cognition and the role of estrogen in brain's control of blood pressure. Research at Hunter College will center on damaged nervous system repair.

Six other SNRPs have been funded through a Specialized Center Grant Cooperative Agreements Award program since 1994. The other institutions are University of Hawaii at Manoa,

University of Puerto Rico Medical Sciences Campus, Universidad Central del Caribe, University of Texas San Antonio, Howard University College of Medicine, and Morehouse School of Medicine.

The NINDS, part of the National Institutes of Health in Bethesda, Maryland, is the nation's leading supporter of research on the brain and nervous system. The NINDS is now celebrating its 50th anniversary. ❖

Physiologists Make Great Teachers! (Surely you know one or more of them)

The Teaching Section of the American Physiological Society invites you to take the initiative to nominate a fellow physiology educator for the Ninth Annual Arthur C. Guyton Physiology Teacher of the Year Award. Nominees must be full-time faculty members of accredited colleges or universities and members of the American Physiological Society. The Selection Committee will look for independent evidence of: 1) excellence in classroom teaching over a number of years at the undergraduate, graduate, or professional levels; 2) commitment to the improvement of physiology teaching within the candidate's own institution; and 3) contributions to physiology education as the local community, national or international levels.

Nominators must be members of the APS; they are responsible for forwarding three copies of the materials listed below to the Chairman of the Award Selection committee, postmarked no later than **December 31, 2000**.

1. A letter from the nominator
2. Letters of support from three other colleagues familiar with the nominee's contributions to physiology education. If possible, one letter should be from the nominee's chairperson. One letter must be from a colleague outside of the nominee's institution.
3. Letters of support from up to five current and/or former students
4. Scores on standard student evaluations (with normative data if possible)
5. Details of all teaching honors received (i.e. Golden Apple,

Teacher of the Year, etc.)

6. Evidence of education-related activities outside the classroom for which the nominee has received national or international reputation. This could include (but is not limited to):

- A. development and publication of laboratory exercises
 - B. development and distribution of teaching software
 - C. authoring of textbooks
 - D. presentation and/or publication of educational research
 - E. conducting seminars, workshops, conferences, etc. on physiology education
7. A copy of the nominee's curriculum vitae
8. Any additional documentation that would assist the selection committee in evaluating the nominee's contribution to physiology education

The person selected will receive the award during the APS business meeting at the April 2001 annual meeting of the American Physiological Society (Experimental Biology 2001 in Orlando, Florida). The Arthur C. Guyton Physiology Teacher of the Year will receive a framed, inscribed certificate, an honorarium of \$1,000, and expenses of up to \$600 to attend the meeting. The awardee is requested to write an essay on his/her philosophy of education for publication in *The Physiologist*.

The Chairman of the Guyton Award Selection Committee is Mary Anne Rokitka, PhD, University at Buffalo-Department of Physiology and Biophysics, Buffalo, NY 14214. Phone: 716-829-2128; Fax: 716-829-2344; E-mail:

Announcements

Second Annual Bristol-Myers Squibb Award for Distinguished Achievement in Metabolic Research



Bristol-Myers Squibb Company presents an annual award to a scientist making an outstanding contribution to the progress of research in metabolic disease, such as diabetes, obesity, hyperlipidemia, osteoporosis, or age-related diseases. Candidates for the award are nomi-

nated by individuals affiliated with medical schools, hospitals and metabolic disease research centers.

AWARD: US \$50,000

Deadline for Receipt of Nominations: **February 2, 2001**

Announcement of Award Recipient: June 2001

Rules and official nomination forms are available from:

www.bms.com/foundation/awards.html or by writing to:

Secretary, Award Committee; Bristol-Myers Squibb Award for Distinguished Achievement in Metabolic Research; Route

206 and Province Line Road; Mailbox D14-01; Princeton, NJ 08540, USA. Telephone (609) 252-6124; E-mail: achievement.awards@bms.com

Selection Committee:*

Gerald I. Shulman, MD, PhD, Selection Committee Chairman; Yale University School of Medicine;

Gerard Ailhaud, PhD, Universite de Nice, Nice, France

Robert Lindsay, MD, PhD Helen Hayes Hospital, West Haverstraw, New York

Stephen O'Rahilly, MD, Addenbrooke's Hospital, Cambridge, UK

Michael Thorner, MD, D.SC. FRCP University of Virginia Health System, Charlottesville, Virginia

*Two additional Selection Committee members will be added in 2001. Please note that current Selection Committee members may not be considered for this award.

Call for Nominations

FASEB Excellence in Science Lecture and Award 2002

Purpose: To recognize outstanding achievement by women in biological sciences.

Eligibility:

1) All women who are members of one or more of the societies of FASEB will be eligible for nomination.

2) Nominations will recognize a woman whose research has contributed significantly to further our understanding of a particular discipline by excellence in research.

Nominations:

1) Nominations may be made only by members of the FASEB Societies.

2) A call for nomination of candidates for the Excellence in Science Award will be posted in the newsletters of the individual Societies as well as the *FASEB Newsletter* and *The the FASEB Journal*.

3) The call for nominations will be made each year in November. **The nomination deadline is March 1, 2001.** The nomination will be transmitted to the FASEB Board before its May meeting.

4) Nominations must be made in the form of a letter, original and fourteen (14) copies, setting forth in detail: the contributions to the field that represents the nominee's outstanding achievement in science
leadership and mentorship
evidence of national recognition
honors and awards

5) Fifteen (15) copies of the curriculum vitae and brief selected bibliography of the nominee, as well as fifteen (15) copies of no more than five (5) reprints, must accompany the

nomination.

6) Additional letters of support (fifteen (15) copies each) for the nominee are optional but are encouraged.

7) The nominations and supporting letters are to be sent to: Ms. Leah C. Valadez

FASEB Excellence in Science Award

Federation of American Societies for Experimental Biology
9650 Rockville Pike

Bethesda, MD 20814-3998

Tel: 301-530-7092

Email: lvaladez@execofc.faseb.org

Selection: The Excellence in Science Award Committee, comprised of a member from each society of the Federation, will receive the nominations and recommend an awardee based on an evaluation of scientific accomplishments. The awardee must agree to present an Excellence in Science Lecture. The name of the awardee and a summary of the candidate's qualifications will be sent to the FASEB Board for approval at the May meeting.

Award Presentation: The award will be presented before presentation of the Excellence in Science Lecture by the awardee. The award will be presented by the Chair of the Excellence in Science Award Committee or her representative in conjunction with a member of the FASEB Board. The award includes a \$10,000 unrestricted research grant, funded by Eli Lilly and Company, travel expenses, complimentary registration at the meeting, and a plaque in recognition of the award.

Scientific Meetings and Congresses

January 3-7

Society for Integrative and Comparative Biology 2001 Annual Meeting, Chicago, IL. *Information:* Society for Integrative and Comparative Biology. Tel: 800-955-1236 or 703-790-1745; fax: 703-790-2672; email: SICB@BurkInc.com; Internet: <http://www.SICB.org>.

January 16-April 26 (Tuesday/Thursday evenings)

Laboratory Animal Science: Management and Techniques, New Brunswick, NJ. *Information:* Carol Broccoli, Office of Continuing Professional Education, Cook College, Rutgers, State University of New Jersey, 102 Ryders Lane, New Brunswick, NJ 08901-8519. Tel: 732-932-9271; fax: 732-932-1187; email: ocpe@aesop.rutgers.edu; Internet: <http://www.cook.rutgers.edu/~ocpe>.

January 22-24

Lab-on-a-Chip and Microarrays for Biomedical and Biotechnical Applications (Cambridge Healthtech Institute's 3rd Annual Meeting), Zurich, Switzerland. *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>.

January 24-26

Integrated Bioinformatics: High-Throughput Interpretation of Pathways and Biology (Cambridge Healthtech Institute's 3rd Annual Meeting), Zurich, Switzerland. *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>.

February 4-9

18th Annual Medical & Surgical Gastroenterology: A Multidisciplinary Approach, Vail, CO. *Information:* Johns Hopkins University School of Medicine, Office of Continuing Medical Education, Turner 20/720 Rutland Avenue, Baltimore, MD 21205-2195. Tel: 410-955-2959; fax: 410-955-0807; email: cmenet@jhmi.edu; Internet: <http://www.med.jhu.edu/cme>.

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>.

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 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>.