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Inside

Scientific Professionalism: Possessors or Pursuers of Truth?

Nancy L. Jones
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Prescriptive Power

Science and technology in the 20th century have played a leading role in charting the course of action for society and individuals. The influence of science in the new 21st century should be equally all-encompassing. Nearly every aspect of our lives is influenced by "research." We may argue about how much credence the public gives an individual report or study, but you can rest assured that if the conclusions support an individual's presuppositions or inclinations, science will be used to justify his/her behavior.

Historically, ethical systems, grown out of philosophical and theological disciplines, define what is right and wrong, good and bad, and prescribe how we ought to live. How then have science and scientists been given such influence in society as to command how we ought to live? The answer lies within the aim of science, the acquisition of knowledge of the truth. But is science an ethical system?

Is Science an Ethical System?

The two basic types of ethical systems are *1*) moral obligation theories, systems that tell you what is the right thing to do; and *2*) virtue theories, systems that show what kind of person you ought to be. If science is an ethical system, it should define what is right and wrong and prescribe how we ought to live. It should also have universibility and mechanisms for resolving conflicting principles. As such, the field of science has elements of a moral obligation theory, while scientists are believed to embody certain virtues. But is science able to function as an ethical system?

Nancy L. Jones

The Activity of Science

The acquisition of knowledge is gained by the inductive scientific method. First, a problem is deconstructed into the most basic elements. A hypothesis is formulated and tested. Data gathering either supports or refutes the hypothesis. Once observations are made, facts are found and re-tested against other known principles and principles found by multiple methodologies. The empirical data generated are used to derive broad governing laws. Objective Truth or Law is revealed. Following governing laws should result in the betterment of society (3). The whole process is capsulated in the objective, above subjective, means of understanding the world.

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Nancy Jones presented the third annual Walter C. Randall Lecture in Biomedical Ethics at the Experimental Biology 2001 meeting held in Orlando, FL in April 2001. The lecture is cosponsored by Taylor University.

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The Virtuous Scientist

The second premise is that of the virtuous scientist. Historically, a scientific professional was committed to a contemplative lifestyle with a self-transcendence into a purer state of being, wholly devoted to the discovery of truth. Einstein's "temple of science" consists of a solitary lifestyle of introspection (3). The scientist is regarded as an impartial or distanced observer or, in modern terms, has no conflicts of interest with the outcome or interpretation of the data collected.

Popularized glimpses of scientists are people clad in white coats, usually isolated from the buzz of humanity, and who only leave the laboratory to proclaim their next finding. Contrast this with the second most popular image of scientists—the *mad* scientist—totally depraved, consumed with ambition, and concocting a means to gain ultimate power over the world. Our world is well-aware that knowledge is power and that power can corrupt. However, the term scientist is synonymous with the *prima facie* obligation of rational objectivity steeped in logical, non-emotional, defendable, and intellectual activity. The motivation for scientists is presumed to be for the sake of truth itself and not to "secure personal gain or to promote the supremacy of a particular philosophy or ideology" (2). Intellectual assessment of the truth holds the power to correct and better, and no coercion or manipulation is necessary.

Truth Possessors

The ideology of science provides the framework that, in theory, is consistent with an ethical system. The activity of science, as well as the scientist, is regarded as objective and rational, and, thereby, embodies a virtuous means of finding truth. In fact, prior to and during the early years following World War II, the world of science was endowed with scientific positivism and optimism. Positivism posits that the methods and insights of science validate and give morality to acts on scientific grounds (5). Optimism claims the world's salvation, meaning future and betterment of the world, is inevitable as a result of scientific activity (3).

How can the world be saved by science? Science evokes salvation not by intervening directly into people's lives, but rather indirectly through the increase in knowledge of the "truth." This truth is of the highest quality, because both the activity of science and the agent, the scientist, are endowed with virtue by their objective and rational nature. Furthermore, the truth revealed is not dogmatically imposed but available for rational people to use in their deliberations on how to act. Unlike philosophies and religions, this means of uncovering truth is considered morally neutral, because of the objective nature of the activity and agent. This type of intellectual activity is highly esteemed in our secular society that relies on secular rationalism as the favored form of moral justification. It is arguable whether in this most pure form scientism flourishes, but elements of this belief system are in our societal collective subconscious. So we must ask, is science, both the activity and the agents, consistent with these ethical theories?

Thorns Climbing the Ivory Tower

Serious, and arguably incurable, flaws tarnish the virtuous view of both scientific activity and scientists. First, the ivory tower of academia, the virtuous scientist's abode, has had the thorny weeds of consumerism and big business crowding out the mythical insulation provided by an academic environment. The prior prejudice of academic scientists over industry scientists holds no ground in the contemporary academic setting where striving for viability by heralding intellectual prowess, claims of "firsts," and courting private investors and industry are common place. Academic consumerism is epitomized by administrations pandering to the *US News and World Report University Rankings* and crystallizes the ivory tower delusion. Furthermore, the distanced impartial scientist is suspect as well. The most successful scientists now are those that have adapted as entrepreneurs of intellectual activity, skilled at obtaining professional remuneration and renown. Moreover, the scientific community itself has entered the fray of politics, patient advocacy, and public policy to secure a "scientific" agenda for the future, which can be easily construed as promoting the supremacy of a particular philosophy or ideology.

As the scientist's virtuosity crumbles upon closer scrutiny, we are not surprised because, after all, scientists are human. And humans, as philosophers and theologians have asserted across time, are either not naturally virtuous or are easily corrupted by societal evils. But the scientific method, by design, overcomes these obstacles inherit to human nature, does it not? So the question is whether scientists can corrupt the objectivity of scientific activity. Daniel Callahan (1) asserts that, "Science is an intensely human and social endeavor, and the work of scientists cannot be cleanly separated from their own personal ambitions and aspirations, let alone those of the larger community in which they work. The work of scientists is conditioned and influenced at every stage of research by personal, professional, and social values. Such values contribute to the motivation and conceptual outlook of scientists, and it is important that scientists be sensitive to their influence—good or bad—on their work." Cloaked in objective factual scientific statements are inherent values that can be traced to the scientist, tradition, or society. As such, what is found will nearly always be influenced by what is looked for.

Although the activity of science by design reduces and subdivides subjects, ultimately society wants the generated data to reveal universal mechanisms. But each subspecialty and experimental

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Ethics, Revisited

Dale J. Benos
Chair, Publications Committee

Fraud, duplicate publication, animal welfare violations, author disputes: these words and phrases evoke different responses from different people. However, one common response that should be evoked in a scientist is revulsion. Truth and honesty are the underpinnings of scientific inquiry. Anything less is unacceptable. In fact, without complete and utter adherence to the principles of ethical behavior, all scientists, and science itself, are threatened.

Why the gloomy introduction? There has, unfortunately, been an unsettling increase in the number of ethical issues confronting the Publications Committee of the American Physiological Society. Some of these issues have already been discussed in two APS editorials (1, 3). In addition to those mentioned above, these issues involve unacknowledged redundant publication of tables and figures, conflict of interest, improper use and/or acquisition of human material, and plagiarism. In some cases, the offending parties are unaware that, for example, all authors of a manuscript should be familiar with its contents, or that erasure of an aberrant datum or two is acceptable only as long as Chauvenet's criterion can reasonably be applied. In these cases, journal Editors and society publishing programs can play an educational role with inexperienced authors. In other cases, however, the infractions are blatant and cannot be explained by ignorance, nor can they be accepted as carelessness. Examples of this sort include: 1) republication of previously published figures; 2) submission of manuscripts without the approval of all authors; and 3) presentation of the same data with altered experimental conditions in response to a reviewer's comment in a previous and unsuccessful submission to a different journal. In blatant cases of unethical behavior, the authors' institutions may become involved, performing an inquiry into whether and to what extent there was unethical behavior. At APS we have procedures delineated in our Ethical Policies and Procedures document, which can be found on the inside back cover of every journal issue and on the World Wide Web at http://www.the-aps.org/publications/journals/apsethic.htm. We take ethical issues very seriously, but handle them carefully, because once an institution is involved, a scientist's career is on the line. If, as a reader, reviewer, or author, you perceive unethical conduct having to do with a journal article, please contact the appropriate editor/associate editor, who will in turn initiate the established procedures for dealing with such issues.

Traditionally, the orderly process of scientific inquiry requires a hypothesis to be generated, then tested by experimentation, the results and conclusions packaged in a manuscript, the paper submitted to a journal for peer review by experts in the field, and finally revised where appropriate. In this modern era, many scientists now engage in complementary discovery-driven research, namely, making observations in the absence of specific hypothesis that will lead to new scientific ideas. It is no surprise that this approach culminates in a manuscript. For science to progress, it must be communicated. The benefits and objectivity of peer review have been argued, but there can be no dispute that peer review adds value to a scientific publication by culling papers with poor design, identifying procedural flaws such as inadequate statistical validation ascertaining that the conclusions reached are supported by the data, and, albeit in a relatively small fraction of submitted manuscripts, calling attention to potentially fraudulent data. No matter how objective and how self-critical a scientist is, it is hard to be totally dispassionate about one's own work. But this is also positive: the commitment, the enthusiasm, and the intensity and drive to seek answers to important and difficult questions differentiates good science from mediocre science. Peer review can and should provide an additional level of detached objectivity to a body of work. In doing so, peer review enhances published research's import and quality. This is important, given the greater public access to the scientific literature, previously the realm of the specialists. More importantly, and especially when the work has clinical ramifications, peer review ensures that false hopes and expectations are not raised when the work is misrepresented or exaggerated consciously or unconsciously by the authors.

Historically, the pressures that ensue from public criticism of a scientist's intellectual endeavors can be immense, particularly if the work promulgates thoughts that challenge existing paradigms. Furthermore, these issues are magnified when productivity is coupled to institutional promotions, acquisition of research funding, and with increasing nonacademic demands. Perhaps the stresses that result from such a competitive environment contribute to a person's deviation from proper ethical behavior. But it is precisely adherence to highly evolved, definitive standards that ensures that valid science is performed and disseminated in the public domain. Even one violation of high moral conduct cannot be tolerated, especially in light of the ever-increasing availability of newly released information that is accessible to scientists and nonscientists alike.

Scientists are explorers, pioneers, and purveyors of the unknown, funded in large measure by money obtained from nonscientists. The testimonies of these voyages into fresh frontiers are essential

and are recorded in the publications of the scientist. As Walter B. Cannon wrote: "The discoverer in science may justifiably entertain the deeply gratifying thought that work well done, observations carefully made and recorded, will ultimately combine with other observations, perhaps made long afterward, in forming the body of truth. . . An investigator may never see the synthesis which brings his work into its relations with the work of others, but from historical evidence he can be assured that such may be the destiny of his observations." (2)

The APS publication program is designed to provide a context in which only the very best work is distributed to the world community. But no matter how many checks and balances are put into place, ultimately the responsibility for honesty lies with the scientist. This problem of untoward ethical behavior in publishing can be minimized and I believe eliminated if all of us reflect upon why we chose to pursue a career in investigative science and if we all take the time to educate ourselves and our students in these matters. Formative influences are strong. We are all citizens of science and must do everything possible to contribute to and uphold the integrity of the enterprise. The marvel, the sparkle of witnessing a new aspect of nature unfolding is boundless. What a tragedy if this glory is ruined by misbehavior. We are given full liberty in our scientific inquiries; therefore, I contend that it is our responsibility to do everything in our power to preserve the sanctity of the work. ❖

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Physiology and Functional Genomics: A Natural Fit

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University of Florida, Gainesville

"Oh be some other name. What's in a name."

Romeo and Juliet
Act 2 Scene ii
William Shakespeare

After years of resisting the temptation to change the name of our Department of Physiology at the University of Florida, we have decided to change it to "Department of Physiology and Functional Genomics." A few years ago I was asked to address an APS symposium on "The future of physiology graduate training" (3). At that time (1993) I had only the vaguest idea of what the impact of the human genome project would mean for physiology, but I did assume that once the genome was completed, our graduate students would have to be fully cognizant of the basics of genetics. In fact, three amazing things have happened since that time. One is that the human genome was completed much sooner than predicted. By the year 2001 the entire human genome had been sequenced and published (4). We now have a full library, of not only the human genome, but also of the genomes of yeast, *Escheria coli*, *Caenorhabolitis elegans*, *Drosophila melonogaster*, and a soon to be completed mouse genome (1,3). The genomes of several other species from bacteria to rats are being sequenced. Amazing fact number two is that, whereas the fruit fly has 14,000 genes, the human genome revealed only about 35,000 genes. Our ingrained anthropocentricity would have led us to predict that we would be vastly more complex than the fly. On the other hand, we do not have wings. The spectacular efficiency of nature to conserve genes emphasized justification to study *Drosophila* genes, such as "pickpocket," or "hedgehog" in cardiovascular physiology. The smaller numbers of genes than expected has turned our attention to "proteomics" which will explain that the difference between us and lower order animals is the number of proteins we are able to produce per gene. The third amazing fact is the explosion of techniques for analyzing genes. The miracle of thousands of genes being detectable on a microchip and the development of complex bioinformatics to analyze these genes on computers has presented physiologists with an opportunity that they should embrace. Namely, we have the opportunity to understand the complex interactions of genes all occurring at the same time. DNA arrays allow one to measure thousands of gene expression changes simultaneously and challenges physiologists to analyze the functional meaning of gene responses to physiological perturbations, such as hypoxia, temperature, or pH.

Physiology, simply defined, is the study of the function of a biological system. Functional genomics, simply defined, is the study of the function of genes. Those are very broad definitions and not solely the purview of the discipline of physiology. Microbiologists, chemists, pharmacologists, cell biologists, as well as geneticists, might have equal claim that functional genomics is part of their discipline. We are pretty

much at the same stage of marking out territory among disciplines as were the European countries in the 16th century arriving in the Americas and planting their flags. Functional genomics is absolutely appropriate for physiologists to study. It is a natural fit. Physiology as a discipline, however, is still broader than functional genomics, as not everything is gene related. Therefore, we changed the name of the Department to Physiology to "Physiology and Functional Genomics." Physiology has always dealt with the integration of function and functional genomics provides much more depth to the multiplicity of gene changes that occur in function and now must be integrated in our physiological explanation.

In the 1970s and 1980s we groped to define physiology, which seemed in danger of being arcane and unexciting to students. Some departments added "Biophysics" or "Cellular and Molecular Biology" to their names. All those addenda seemed to reflect techniques more than a discipline. The relevance of the names faded in impact over time. I believe that functional genomics is a way of thinking and therefore a discipline. As we view the vast geography of genomes available to us through mapping, we will mine areas for their function, probably related to those areas with which we are already skilled and familiar. These include cardiovascular, respiration, renal, gastrointestinal, and neuronal. DNA chips are being produced with arrays of genes, specifically for the heart or kidney or brain. We will be recruiting into physiology, geneticists and bioinformaticists. We will bring in bright, young biologists into human physiology who are familiar with yeast, *C. elegans*, and other species whose genes we share and which are known to be relevant to human physiology (2). Physiology will be more exciting than it has ever been. We will be testing the function of genes in physiological preparations and adopting some of the new techniques in genetics, for example, reverse genetic analysis to disrupt the activity of gene and examining its phenotypic consequences, RNA-mediated interference (RNAi), and other techniques for disrupting gene activity to produce new phenotypes for study. Many advances that once seemed too esoteric and unavailable to physiology, such as knockouts, antisense, gene arrays, and yeast-two hybrid systems, have become routine. The same will be true of gene disruption methods. The physiology graduate students of the 21st century need training in functional genomics. Gene-expression profiling will reveal new genes in physiology. We are finding unexpected roles for known genes. The relevance of functional genomics to physiology and human medicine is obvious. Many mutated genes in human diseases are shared by the fruit fly, nematode, and yeast. Since most physiology in medical schools addresses human medical problems, the study of functional genomics is ideal for identifying genes with function in normal physiology and whose dysfunction causes the pathophysiology of disease. For the biological study of the evolution of physiological processes across species, functional genomics is equally ideal.

The truth is we have been doing functional genomics for some time but did not have a name for it. Now that we know what it is, let us claim it and go boldly into the 21st century. Physiology and functional genomics are intertwined in a natural marriage of science. "What's in a name?" Physiology is still physiology, but functional genomics is ours to embrace. ❖

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method has unique abilities and limitations to the universally of the experimental interpretation. So how far may one extrapolate from a single report or subspecialty? Historically, the scientific community has provided these normative processes for research activity. The community not only provides proof of the veracity of the findings by peer review and publication in reputable journals but ultimately gives a stamp of reliability when research is reconfirmed by other members of the scientific community. Peer review, pit falls and all, means that research can survive scrutiny by a body of scientists, not just the individual researchers. However, funding outside of peer review, commercialization of intellectual activity, speed to application, and increased accessibility of data at all stages of analysis inherently inflates the individual scientific opinion and minimizes the influences of the whole scientific society.

Weed Whackers or Herbicides

As the biomedical research community is struggling with the evolving scientific environment pressurized by our consumerism society, an ethics vacuum for both the "ethical" scientist and "ethical" activity of science has been identified. To address the ethics shortfall, the National Institutes of Health began requiring formal training for their sponsored trainees in the *"Responsible conduct of research and the principles of scientific integrity"* (4). Recently, the Office of Research Integrity has proposed to extend this ethics training to all personnel on Public Health Service grants.[1] A consensus has been reached of the necessity of raising the ethical training bar, but the nature of the required training has not been standardized.

Perhaps the scope of the perceived problem can be shown in often-heard comments. Such as, ethics in science is actually an extension of common sense values and accepted behaviors of society as a whole. The problem with this naturalistic view is the concept that people inherently know what is the right thing to do and that our diverse global society operates from the same ethical system. Such emphasis relegates science to a minimal or average standard, rather than elevating it to a professional level. So before we embark on corrective measures, we might ask what is the standard we hope to achieve?

David Randall, Joyce Helyer (Taylor University), and Martin Frank present a plaque to Nancy Jones for the Walter Randall Lecture in Biomedical Ethics.

Professional Standard

Society places enormous trust in the scientific endeavor, and we as members of the scientific community want to be worthy of this trust. As noted above, the trust lies in the belief of the objective scientific activity and the virtuous scientist. Just as society wants virtuous physicians who adhere to the Hippocratic standard, so society wants virtuous scientists and science that subscribe to timeless standards. Scientists might not be able to change the environment for scientific activity nor alter the biases and flaws inherent within individual scientific methods. However, like the Hippocratic physician, they can embrace a professionalism that will transcend these outside influences and endorse normative standards for the scientific community. Does science have a professional code that is universally known or upheld? Yes and no.

Although scientists practice the scientific method, they generally adhere to one of two major philosophies. Commitment to one of these philosophies influences scientific professionalism as well as the interface with the rest of society. The first philosophy states that knowledge is the sole object of science. The second philosophy agrees with the value of acquiring knowledge but insists in linking that activity with the underling purpose of the betterment of society. These two philosophies pull science in diverse directions. The acquisition of knowledge for knowledge's sake alone translates in our autonomy driven society as a "right" or "ought" for scientific and research freedom. "What can be done" is used to justify what is done. Elevating knowledge to a place of supremacy allows justification for all "scientifically" relevant experiments. This philosophy spurs the concept that governmental (societal) restriction of research is paternalistic and results in needless regulatory oversight as well as impedes scientific advancement. However, when the results are thought to justify the means, the public anticipates experiments gone awry and the truth that would obviate regulation is lacking.

Contrast this with the Baconian philosophy of linking the acquisition of knowledge to the betterment of society.[2] This philosophy of science casts scientists as servants of society and

[1] *Washington Highlights*, Association of American Medical Colleges, Vol. 11, No. 32, August 18, 2000, p. 2.

[2] Francis Bacon said, "God has given Man the gift of thought, the ability to explore all knowledge, providing he uses it for the benefit and relief of the state and society of man; for otherwise all manner of knowledge becometh malign and serpentine" (2).

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members of a scientific profession and thereby checks the mad scientist's thirst for power. This philosophy leads to examination of "What should be done?" To justify research, the means must also be ethical in this principled approach. The public endorses this concept of the function of science. Although some adopt the view of responsibility to society, a more generally articulated view is science (knowledge) for science's (knowledge's) sake alone. Science for knowledge alone is innately blemished by perpetuating self-interests of the industry of science, and thereby making suspect the objectivity of the activity. Promotion of the philosophy for the betterment of society can provide a safeguard for science's future and maintain the public trust in the profession.

Emphasizing professionalism and membership in a scientific community as part of ethics training has many positive outcomes. First, scientists begin to conform to the highest standards, as well as identifying themselves with age-tested ethical norms. Norms like honesty, objectivity, tolerance, doubt of certitude, and unselfish engagement (2). Honesty and unselfish engagement need no definition. However, unselfish engagement needs further discussion. The concept of unselfish engagement, although perhaps unobtainable, becomes controllable in the context of openness and membership in a functioning community. Doubt of certitude indicates readiness to question authorities to advance new knowledge. This principle asserts that no theory or fact is sacred; rather, conclusions are always subject to further revelation and reinterpretation. This principle is combined with a healthy need for independent confirmation and the ability of data to stand the test of time. Tolerance is the norm based on respect for other's ideas within the scientific community.

Truth Pursuers

The scientific community needs to ascribe to the highest standards of accountability and leadership. The influences that scientists have in society brings with it the largely un-addressed obligation to provide more responsible leadership. Medical doctors have long been taught about the influence they wield over people in vulnerable situations. However, "researchers" in the past were more insulated from consequences of their influence. "The scientific community has been well-prepared to take responsibility (and credit) for the benefits it bestows: and it is right that is it should. To what extent should it be prepared to take equal responsibility (and blame) for the harm it can and does produce?" (1). This is particularly true as scientific research reaches the public with increasing speed and at earlier stages of investigation.

We must also defuse the positivism of science and reestablish what science can and cannot answer. Science can give us an understanding of the biological forces and laws governing our universe. Science, as a discipline based on certain presuppositions and a naturalistic worldview, however, cannot answer metaphysical questions. Modern trained scientists, with minimal philosophical education, do not even know when they are transgressing outside of their discipline's abilities. This deficiency must also be addressed if we are to regain ethical science and ethical scientists.

The White Coat

The white coat has remained a powerful symbol of our profession. I argue that it is our responsibility as a professional community to repaint a more accurate picture of the meaning of the white coat. Some might argue this would demean or jeopardize our position in society or impede the progress. However, science in the real world can never reflect the pure ideology associated with science. Truth gathered by the scientific methods should always be examined in light of the limitations of the methods, the climate in which the research was done, and the researcher's subspecialty. "Rational" scientists more than any other professional group should be champions ready to slay the myths and misconceptions of what society can rightly expect from the activity of science. As such, we should begin to paint a different ideal or model: the scientist clad in the white coat does not possess ultimate truth; rather he is a fellow pursuer of truth.

Although the white coat indicates advanced training in skills that can increase the wearer's ability to look at things objectively and systematically, it cannot cloak his human nature. Rather, it is the scientific community's responsibility, as it passes on the right to wear a white coat, to give assurances of the professionalism of the wearer. ❖

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Acknowledgements

I would like to thank Dr. Dawn C. Schwenke for editorial and content insights for this article.

Time: 5:30 PM, Tuesday, April 3, 2001
Place: Peabody Hotel, Orlando, FL

I. Call to Order

The meeting was called to order at 5:35 PM by President **Gerald F. DiBona**, who welcomed the members to the 154th Business Meeting of the American Physiological Society. A booklet containing the agenda and a listing of all the APS award recipients was distributed. President DiBona selected **Hannah Carey** as parliamentarian.

APS President Gerald F. DiBona

II. Election of Officers

Executive Director **Martin Frank** announced the results of the election of officers that was conducted by mail ballot. The membership elected **Barbara A. Horwitz**, University of California, Davis, as President-Elect (April 4, 2001-April 24, 2002). The two newly elected Councillors for three-year terms are **Kim E. Barrett**, University of California, San Diego, and **Joseph R. (J.R.) Haywood**, University of Texas Health Science Center at San Antonio (April 4, 2001-April 21, 2004). They will assume office at the close of the Annual Meeting. They are replacing **William W. Chin** and **Phyllis M. Wise**, who are completing two- and three-year terms, respectively, on Council.

III. Proposed Amendments to the Bylaws

In compliance with the Society Bylaws, the proposed amendments to the Bylaws on making the Chair of the Section Advisory Committee a voting member of Council and on changing the dues year to a calendar year were published in *The Physiologist* [43(6): 472, 2000].

Motions were unanimously passed by the members approving the amendments to the Bylaws as follows:

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, ~~without~~ with vote.

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.

IV. State of the Society

DiBona mentioned that each year the President of the Society has the opportunity to review the year and to comment on the state of the Society at the annual Business Meeting. He noted that as he began his year as President, he asked the questions in his Presidential article of where has the Society been and where was it going. Throughout this past year, the APS 2000 Strategic Plan was used as the navigational chart. Now that he is at the end of the year, he would like to review what the Society has done.

The basic machinery for the implementation of the Strategic Plan has been the working Task Forces that were organized. The first of these to be established was the Publications Pricing Task Force, which was led by Publications Committee Chair **Dale Benos**. The recommendations to come out of this Task Force included that the content of the APS journals should be considered to be primary to the pricing of the journals and the method of distribution (whether online or print) secondary. Therefore, the pricing model developed by the Task Force recommended that the 10% margin that the APS publications program needs to generate should be associated with the content of the journals, not the method of distribution. As an outcome, APS has initiated flexible market options whereby subscribers can

purchase the online version, the print version, or both for any journal. In addition, the Task Force recommended that the Society publish the legacy data online as quickly as possible.

The second Task Force to be implemented was the Public Information/ Communications Task Force, under the leadership of Councillor **Hannah Carey**. The recommendations to come out of this Task Force were divided into two phases. During Phase I, physiology will be defined for the general public, scientists in general, and scientists identifying themselves as physiologists. Materials will be developed for distribution to the media, and an APS Press Kit will be developed for APS members to use when talking to the media. In addition, an APS communications intrastructure will be developed on the Web. Conferences and/or workshops on training programs in translational physiology will be held, emphasizing an initiative that President-elect **John Hall** is championing. During Phase II, the materials developed in Phase I will be used to promote physiology to the general public, the scientific community, and physiologists. To begin implementing these recommendations, a Request for Proposals was issued recently to various communications/media relation firms in the Washington, DC area seeking a company to work with for a one-year period to get the program started. A staff person will also be hired to work with the selected company and to continue the efforts when the contract period is over.

Two Task Forces were set up to deal with the two new research initiatives on which APS has been and will continue to be focusing: physiological genomics and translational research. Councillor **William Chin** chaired the Physiological Genomics Task Force. That group recommended that a program be developed to help educate APS members in basic and applied physiological genomics. This would be accomplished through sessions held during the Experimental Biology meeting, including "hands-on" sessions, oral sessions, symposia, and Featured Topics, as well as through an annual APS Conference. The first such conference, entitled "Physiological Genomics of Cardiovascular Disease," will be held on February 20-23, 2002, in San Francisco, CA. It is being organized by **Curt Sigmund** and **Craig Gelband**. The Task Force also recommended that the Society establish an Interest Group in Physiological Genomics, as well as in Translational Research (see below). This recommendation was approved at the Council meeting held just prior to this Experimental Biology meeting. The group also urged the Society to enhance the impact of the Postdoctoral Fellowship in Physiological Genomics, to highlight physiological genomics in the APS journals, and to liaison with NIH and others to develop programs in genomic applications.

The Translational Research Task Force was co-chaired by Councillor **Steven Hebert** and President-elect **John Hall**. Their suggestions focused on promoting the instruction of physiology at all levels of medical education, highlighting translational research, encouraging inderdisciplinary research, and promoting translational research as a career. For promoting the teaching of physiology, the Task Force recommended encouraging physiologists to teach physiology; encouraging the teaching of physiology to medical students during their clinical years and during postgraduate clinical training; encouraging the teaching of pathophysiology in medical curricula, during clinical research years, and in physiology PhD training programs; and encouraging the mentoring of clinical faculty and residents in physiology departments. It was suggested that translational research could be highlighted by strengthening programmatic ties with the American Federation for Medical Research, which is a Guest Society at the Experimental Biology meeting; organizing translational research conferences; sponsoring satellite meetings that focus on "physiology in medicine" at clinical meetings; highlighting translational research in APS journals (a "call for papers" will be included in the June issue of all APS journals); and encouraging electives in physiology laboratories for residents in clinical training. The Task Force recommended sponsoring EB workshops on how to organize interdisciplinary research programs, encouraging NIH funding for interdisciplinary research involving basic and clinical scientists, and encouraging industry alliances to sponsor pre- or postdoctoral training in translational research as being the most effective means to encourage greater interdisciplinary research. It was suggested that a good way to promote translational research as a career would be to have career opportunity programs during the Experimental Biology meeting.

The most recent Task Force to be implemented was a Task Force on Sections and Groups, co-chaired by former Section Advisory Committee Chair **Richard Traystman** and current Section Advisory Committee Chair **Celia Sladek**. They have met once and plan other sessions to develop recommendations for Council consideration. Upcoming Task Forces that will be organized this year include a Task Force on Awards to consider all the Society awards, their level of funding, and inclusiveness of all sectors of the Society; and a Task Force on APS Foundation and Fund Raising to consider the issue of establishing an APS Foundation and the development of a fund raising program.

DiBona reminded the membership of the significant additional member benefits that have occurred over the past year. Within publications, there is a new venture called "Articles in PresS" in which APS articles will be published online immediately on acceptance; the Society's legacy data back to 1985 will be placed online this year, with more to

be included in subsequent years; members will obtain free access to the entire online journal collection beginning in January 2002; both *Physiological Genomics* and *News in Physiological Sciences* were accepted for inclusion in PubMed Central and Index Medicus/Medline; and the *Journal of Neuroscience* from the Society for Neuroscience is available to APS members at a special rate. With regard to meetings, the number of APS Conferences will be increasing from two per year to four per year with the addition of annual conferences on physiological genomics and translational research. He announced that the APS Membership Services Office would be separated into a Meetings Office and a Membership Office, allowing sections to have greater staff support. The recent Latin American Initiative, spearheaded by the International Physiology Committee under the Chairmanship of **Hector Rasgado-Flores**, allows Latin American members to apply for financial support for workshops or symposia being held in their countries. Membership in APS has been internationalized with the acceptance of international members as Regular members. In addition, since last fall, the Membership Committee and Council have been approving membership applications on a monthly basis, allowing for more rapid acceptance of scientists as new members.

DiBona pointed out that the Society has been increasingly concerned about journal revenue, since the majority of the Society's budget is based on receipt of that revenue. He presented a graph showing that subscriptions make up 68% of the total journal revenue received, page charges 16%, reprints 9%, color figures and pay-for-view 6%, and advertising 1%. On the other hand, processing journal content (including review and editorial charges) and getting it ready for publication (copy editing) account for 77% of the journal expenses incurred, whereas printing and mailing the journals account for 18.3% of the expenses and placing content online is another 4.7% of the expenses. Consequently, the ever-declining print subscription rate comes under scrutiny each year. While the total number of institutional subscriptions (accounting for the vast majority of subscriptions the Society receives) decreased 5% between 1999 and 2000, the individual member subscriptions decreased 15% and the non-member individual subscriptions decreased 12%, yielding a total decrease of 7% in subscriptions. However, the good news is that, this year for the first time, the Society is beginning to see an offset in the loss of print subscriptions from an increasing number of online subscriptions. With respect to the accessing of online journals, DiBona announced that the highest access rate went to *Physiological Reviews*, the Society's number one journal in the Citation Index. Second was *Advances in Physiology Education*, which is of tremendous benefit to teachers of physiology but not cited much in the literature. He was pleased to announce that the Society's newest journal, *Physiological Genomics*, came in third.

The Bylaw changes approved by the membership at this meeting will be implemented immediately and have come from the Strategic Plan (Section Advisory Committee Chair receiving a vote on Council) and from the recommendations of two committees (Membership Committee/Finance Committee for a change in the dues year). Both of these changes should serve the membership well.

In addition, Council decided to implement an increase in dues for Regular members from $90 to $100 per year. DiBona noted that, in 1996, at the time of the last dues increase, the Finance Committee had recommended linking dues to the inflation rate. The rate of inflation has averaged 2.5% over the past few years. This increase will serve to bring the dues somewhat into line with what they should have been had Council been diligent about linking dues with inflation. The increase will take effect on January 1, 2002. Dues will not change for affiliate or student members.

DiBona then thanked the officers of the APS for their service over the past year: Past President **Walter F. Boron**, President-elect **John E. Hall**, and Councillors **Hannah V. Carey**, **William W. Chin**, **Douglas C. Eaton**, **Steven C. Hebert**, **Phyllis M. Wise**, and **Jo Rae Wright**. He also thanked the committee chairs who serve ex officio on Council: Publications Committee Chair **Dale J. Benos**, Finance Committee Chair **Mordecai P. Blaustein**, Education Committee Chair **Barbara E. Goodman** (former) and **Robert G. Carroll** (current), Joint Program Committee Chair **Judith A. Neubauer**, and Section Advisory Committee Chair **Celia D. Sladek**. He acknowledged those outgoing members of Council (Past President **Walter F. Boron** and Councillors **William W. Chin** and **Phyllis M. Wise**) and the incoming members (President **John E. Hall**, President-elect **Barbara A. Horwitz**, and Councillors **Kim E. Barrett** and **Joseph R. Haywood**). He also thanked the APS staff, especially Executive Director **Martin Frank**, for all their assistance and efforts during his presidency.

In closing, DiBona thanked the membership for the opportunity to serve the Society as its Captain.

V. Report on Membership

A. Summary of the Membership Status

President-Elect **John E. Hall** reported on the status of the Society membership. As of March 22, 2001, the current membership of the Society is 10,653, of which 7,303 are regular members, 39 are honorary members, 1,107 are emeritus members, 143 are affiliate members, and 2,058 are student members. The Society also has 23 Sustaining Associate members.

B. Deaths Reported Since the Last Meeting

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

VI. Awards and Presentations

A. Orr E. Reynolds Award

The Orr E. Reynolds Award, established in 1985 in honor of the second Executive Secretary-Treasurer, is presented for the best historical article submitted by a member of the Society. Members may receive the award only once, and those members who have advanced degrees in the history of science or medicine are not eligible. The recipient receives $500 and expenses to attend the Experimental Biology meeting.

DiBona was pleased to announce that the 2001 Reynolds Awardee is **Knut Aukland**, University of Bergen, Norway, for his article entitled "Odd E. Hanssen and the Hanssen Method for Measurement of Single Nephron Glomerular Filtration Rate."

In accepting the award, Aukland noted that "this was my first attempt at an historical essay, but I never thought it would give me an award. I was greatly surprised and am honored to receive the Reynolds Award."

President Gerald F. DiBona presenting Orr E. Reynolds Award to Knut Aukland.

President Gerald F. DiBona, along with William Schmitt from the W.B. Saunders Co., presenting Dee Silverthorn, with the Arthur C. Guyton Teacher of the Year Award.

B. Arthur C. Guyton Teacher of the Year Award

The Arthur C. Guyton Teacher of the Year Award was established in 1993 by the Teaching of Physiology Section and supported by the W. B. Saunders Company, publisher of Guyton's *Textbook on Medical Physiology*, used to educate generations of medical and physiology students. The award is given to an APS member who is a full-time faculty member of an accredited college or university and involved in classroom teaching and not exclusively the teaching of graduate students in a research laboratory. The recipient receives $1,000 and expenses to attend the EB meeting.

DiBona introduced William Schmitt from the W.B. Saunders Company who presented the 2001 Guyton Teacher of the Year Award to **Dee Silverthorn**, noting that she had been nominated by her peers and students for this award.

C. Giles F. Filley Memorial Awards

As a result of a bequest from the family of Giles F. Filley, a memorial fund was established in 1993 to recognize excellence in respiratory physiology and medicine. Two annual awards are made to investigators who hold an aca-

President Gerald F. DiBona presenting the Giles F. Filley Award to Larissa Akimi Shimoda and Karen Anderson Fagan .

demic rank no higher than assistant professor and are pursuing research in respiratory physiology and medicine. Awards are made to APS members working in the United States, who have demonstrated outstanding promise based on their research program.

President DiBona presented the 2001 awards to **Karen Anderson Fagan**, University of Colorado, Denver, and **Larissa Akimi Shimoda**, Johns Hopkins University.

Fagan is studying whether intermittent and continuous alveolar hypoxia lead to differential expression of genes important in regulating vascular tone and structure leading to perturbed pulmonary vascular regulation and pulmonary hypertension. She will also investigate whether repetitive cycling between normoxia and hypoxia with the resultant generation of reactive oxygen species accounts for the differences in gene expression between intermittent and chronic hypoxia. Shimoda's current research is on understanding the cellular mechanisms underlying the depolarization, elevation in resting intracellular calcium concentration, and changes in calcium ion-dependence of contraction in response to ET-1 during exposure to chronic hypoxia to determine whether they will provide new insight into the pathogenesis of chronic hypoxic pulmonary hypertension.

Each recipient received a $25,000 check for use in her respective research program, a plaque, and reimbursement of expenses to attend the Experimental Biology meeting.

D. Shih-Chun Wang Young Investigator Award

As a result of a bequest from the wife of Shih-Chun Wang, a memorial fund was established in 1998 to recognize excellence in physiology. Shih-Chun Wang was the Pfeiffer Professor of Pharmacology at Columbia University and a long-standing member of The American Physiological Society. He was internationally recognized for his research contributions in the areas of neurophysiology and neuropharmacology with an emphasis on brainstem control mechanisms. An award is made to an APS member working in the United States who has demonstrated outstanding promise based on his/her research program. DiBona presented the 2001 Wang Award to **Hunter C. Champion**, Johns Hopkins University.

Champion is investigating whether increased arginase concentrations result in decreased nitric oxide production, since arginase and nitric oxide synthase compete for the same substrate, thereby playing an important role in the response to pulmonary hypertension.

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

E. Lazaro J. Mandel Young Investigator Award

As a result of a bequest from the wife of Lazaro J. Mandel, a memorial fund was established in 1999 to recognize excellence in epithelial or renal physiology. An annual award is made to an investigator who holds an academic rank no higher than assistant professor and is pursuing research in epithelial or renal physiology. An award is made to an APS member working in the United States who has demonstrated outstanding promise based on his or her research program. DiBona presented the 2001 Mandel Award to **Daniel C. Devor**, University of Pittsburgh.

Devor is seeking a molecular understanding of the physiology and cell biology of a recently cloned potassium channel that is believed to be responsible for calcium-mediated chloride secretory response in the basolateral cell membrane.

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

F. Arthur C. Guyton Award for Excellence in Integrative Physiology

A donation to the Society in honor of Arthur C. Guyton led to the establishment in 1997 of an award to recognize excellence in integrative physiology. One award is made annually to a regular APS member who demonstrates outstanding promise based on his/her research program in feedback, mathematical modeling, and integrative physiology.

President DiBona presented the 2001 Arthur C. Guyton Award in Integrative Physiology to **Steven J. Swoap**, Williams College.

Swoap is planning to use molecular biological tools in the physiological settings to determine the mechanims for altered phenotype in blood pressure or muscle fiber type.

President Gerald F. DiBona presenting Hunter C. Champion with the Shih-Chun Wang Young Investigator Award.

President Gerald F. DiBona presenting Daniel C. Devor with the Lazaro J. Mandel Young Investigator Award.

President Gerald F. DiBona presenting Arthur C. Guyton Award in Integrative Physiology to Steven J. Swoap.

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

G. Liaison With Industry Awards

The Liaison With Industry Awards are given to the graduate student and the postdoctoral fellow submitting the best abstract describing a novel disease model. This is the second year these awards have been given. DiBona and **Glenn A. Reinhart**, a representative of the Liaison With Industry Committee, presented the 2001 Liaison With Industry Awards to Postdoctoral Fellow **Harmeet Malhi** from the Albert Einstein College of Medicine, and Graduate Student **Imran N. Mungrue** from the University of Toronto.

Malhi is investigating a rodent model of oxidative hepatic injury with persistent hepatocyte losses in the long-term and its potential for testing therapeutic interventions. Mungrue is studying the myocardial over-expression of inducible nitric oxide synthase in mice models of human heart disease.

H. Caroline tum Suden/Frances Hellebrandt Professional Opportunity Awards

Thirty-six awards were made possible by the bequests of Caroline tum Suden and Frances Hellebrandt, who were long-time members of the Society. Awards are open to graduate students or postdoctoral fellows who present papers at the spring meeting. Recipients receive a $500 check for travel to the Experimental Biology meeting, paid registration, and have access to the FASEB Placement Service. **Susan Barman**, Chair of the Women in Physiology Committee, presented the awards (see p. 166).

I. Procter & Gamble Professional Opportunity Awards

The Procter and Gamble Company, a multinational, technically based consumer products corporation, provides support for the APS Professional Opportunities Awards. The APS sections selected 17 predoctoral students who are within 12-18 months of receiving a PhD degree and are presenting a paper as first author at the spring meeting. Paid registration and $500 checks were given to the awardees (see p. 167).

J. Minority Travel Fellowships

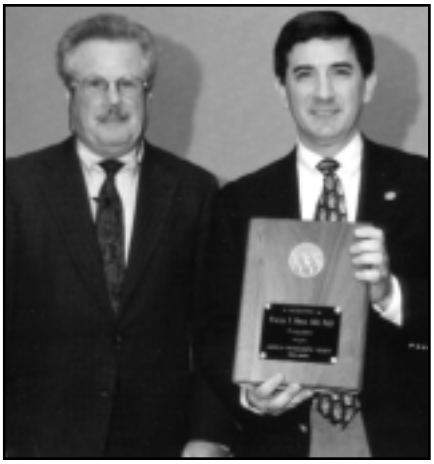
Frank announced that 49 Minority Travel Fellowship awards, funded by NIDDK and NIGMS, were presented to minority students to help them attend the Experimental Biology 2001 meeting (see p. 167).

K. Recognition of Outgoing Section Chairs

Kathleen H. Berecek, Chair of the Cardiovascular Section; **Robert B. Gunn**, Chair of the Cell and Molecular Physiology Section; **Charles M. Tipton**, Chair of the Environmental and Exercise Physiology Section; and **David H. Wasserman**, Chair of the Endocrinology and Metabolism Section, complete their terms at the close of this meeting. DiBona expressed pleasure in having had the opportunity to serve in a leadership capacity with them and recognized their dedication and guidance to their individual sections as well as the Society.

President Gerald F. DiBona and Glenn Reinhart, representing the Liaison With Industry Committee, present Liaison With Industry Award winners Harmeet Malhi (postdoctoral fellow) and Imran Mungrue (graduate student) with plaques.

President Gerald F. DiBona presents a plaque to outgoing Cardiovascular Section Chair Kathleen Berecek.



President Gerald F. DiBona presents a plaque to Past President Walter F. Boron.

President Gerald F. DiBona passes the gavel to President-Elect John Hall.

VII. Passing of the Gavel

DiBona then turned the gavel over to **John E. Hall**, University of Mississippi, the incoming President of the American Physiological Society. Hall thanked DiBona on behalf of the Society membership for all he accomplished for APS throughout the past year, noting that through his efforts, he moved the Society forward. Hall thanked the membership for the opportunity to serve as President of the Society.

There being no new business, the meeting was adjourned at 6:37 PM, April 3, 2001. ❖

John E. Hall
President-Elect

L. Recognition of Outgoing Councillors

Councillors **William W. Chin** and **Phyllis M. Wise** complete their terms at the close of this meeting. DiBona expressed pleasure in having had the opportunity to serve on Council with them and recognized their dedication and guidance to the Society.

Announcing that this is **Walter F. Boron**'s last meeting as an officer of the Society, DiBona noted that it was a special pleasure to recognize Boron for his strong leadership of the Society. He pointed out that Boron served as Chair of the Renal Section, Editor of *Physiological Reviews*, and as Councillor before being elected President. Under his leadership he proposed the use of 4% of the interest on the investment accounts for Society programs rather than cut programs to balance the budget. It was under his guidance that the APS Nominating Committee ensured that APS would have its second female President. He thanked Boron for his excellent and dedicated service to the Society, presenting him with a plaque honoring his presidency.

Boron thanked the Council and Society membership for the opportunity to serve as President, noting that "the three years on Council and the three serving as President were the most rewarding in my scientific life. Thanks for the memories."

APS Council: Front (l to r): Barbara Horwitz, John Hall, Gerald DiBona, Walter Boron, Celia Sladek. Back (l to r): Kim Barrett, Dale Benos, Robert Carroll, Mordecai Blaustein, Phyllis Wise, Jo Rae Wright, Douglas Eaton, Steven Hebert, Hannah Carey, J.R. Haywood, Judy Neubauer.

President Gerald F. DiBona presenting the Walter B. Cannon Lecture Award to Robert Lefkowitz.

Past President Walter F. Boron presenting the Henry Pickering Bowditch Lecture Award plaque to Peter Deen.

APS Past Presidents: Back (l to r): Allen Cowley, Jr., Leonard (Jim) Jefferson, John West, Shu Chien, Aubrey Taylor, L. Gabriel Navar, Vernon Bishop, James Schafer, Stanley Schultz. Front (l to r): Walter Boron, Barbara Horwitz, Gerald DiBona, Bodil Schmidt-Nielsen, John Hall.

APS Section Advisory Committee: Front (l to r) Thomas Lohmeier, Kathleen Berecek, Celia Sladek, Dee Silverthorn, Jeff Sands. Back (l to r): Michael Matthay, Robert Gunn, David Evans, Helen Raybould, David Wasserman, Jeanne Seagard, Charles Tipton, Susan Barman, Ken Baldwin.

Folk Receives Daggs Award

Ray G. Daggs was the APS Executive Secretary-Treasurer from 1956 until his retirement in 1972. In tribute to his devotion to the Society, the Ray G. Daggs Award was established and is given annually to a physiologist for distinguished service to the Society and to the science of physiology. The recipient receives $500 and expenses to attend the Experimental Biology meeting. DiBona was pleased to announce that the recipient of the 2001 Ray G. Daggs Award is **G. Edgar Folk**.

APS President Gerald DiBona presents the Ray G. Daggs Award to G. Edgar Folk.

Folk became a member of APS just three years prior to Daggs' appointment as the Society's Executive Secretary-Treasurer. Folk became a member of APS in 1953 and continues, after 48 years, to be an active member of APS. He received his PhD from Harvard University in 1947 and after World War II became the director of the Fatigue Laboratory at Harvard. He moved directly from that position to become a faculty member of the Department of Physiology and Biophysics at the University of Iowa where he has assumed leadership roles of responsibility and has displayed innovativeness in his science.

Folk is preeminently qualified for the Ray Daggs award. Soon after becoming an APS member, Folk joined the Society's Committee that not only founded the *Journal of Applied Physiology* but also planned the journal's design. Folk served on that journal's Editorial Board for several years. During his near half century as a member of APS, Folk has been an exemplary and dedicated member. He has attended 64 meetings-probably 65, if we count the present meeting (that was because APS used to have meetings in the spring and fall.)

Further evidence of Folk's dedication to the Society are his active service on numerous and varied committees that number close to a dozen over the years. He participated, under Orr Reynolds' guidance, in dividing the Society into Sections. Currently he is serving his second appointment to the Senior Physiologists Committee and to the Joint Program Committee. The Environmental and Exercise Physiology (EEP) Section selected him as the Section's "Distinguished Scientist" for his service within the Section. He chaired the committee that established the Belding Prize for distinguished research. In addition, a "Folk Award," now called the APS Senior Physiologist Award, was established which provides funds to senior physiologists to attend APS meetings or to publish papers when they would not otherwise have the resources. Over the past three years Folk has been the convener and co-chair of the History of Physiology Group's symposium during those EB meetings. The symposium in Washington, DC was on the "History of Cold Physiology" (a subject on which Folk has written a book), the one in San Diego was on the "History of Transplantation," and the one here in Orlando is on the "History of Exercise Physiology Behind the Iron Curtain During the Cold War."

Folk has encouraged his students, postdoctoral fellows, and visiting professors to become members of the Society. His contributions to Society over the years have brought honor to the EEP Section and in recent years to the History of Physiology Group.

Folk's continuous scientific excellence in environmental research has gained him international recognition, evidenced by his many invitations to lecture in a variety of regions around the world. He has had a life-long fascination and enthusiasm for his "field research" which he conducts on animals in their natural state under challenging conditions. He was among the first to implant radio transmitters for recording body temperature, heart rate, activity, and other physiological parameters on lemmings, wolves, and polar bears, as well as hibernating squirrels. Many of these studies were conducted in the arctic, Alaska, or other sites where the environment is extreme.

His extensive bibliography numbers about 300 scientific reports and papers. He co-authored a chapter in the APS *Handbook of Physiology: Environmental Physiology*. He has authored one of the first textbooks concerned with environmental physiology. A recent revision of this premier book, entitled *Principles of Integrative Environmental Physiology* is currently serving environmental physiologists around the world. Over the years he has trained PhD students, Masters students, and postdoctoral fellows, and has hosted visiting professors. Folk's unusual teaching and mentoring skills have been recognized by all of his colleagues and students.

It is with pleasure and pride that in 2001 the APS recognizes G. Edgar Folk as the Ray G. Daggs Awardee. He has made significant contributions to APS, is a foremost researcher in environmental science, and has made a difference to his students, his department, the EEP Section, to the History of Physiology Group, and to the Society in general. We believe that Ray G. Daggs would applaud, with the rest of us, the selection of G. Edgar Folk as the 2001

awardee.

In accepting the Daggs Award, Folk expressed his "thanks to the Daggs Award Committee and to APS for giving me this award. When I think of role models, I think mainly of my PhD sponsor, Jack Welch, in the laboratory at Cambridge. When I got my PhD, he had just discovered the third neurohormone. Now there are 50 some. I call this condensed history. I talked to him recently at the age of 99 and he is still active. He is just one on a list of people who have been an inspiration to me. Thank you, again, for this honor." ❖

Graduate Students and Postdoctoral Fellows Receive Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Awards

Graduate students and postdoctoral fellows who were first authors on an abstract submitted to Experimental Biology 2001 in Orlando, FL were eligible to apply for the Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Award. The APS Women in Physiology Committee, chaired by Susan Barman, Michigan State University, selected 36 awardees from a pool of 123 applicants. Applicants were chosen based on the quality and novelty of their abstracts, and letters written by the candidates describing their career goals, research, and why they were particularly deserving of the award. Each awardee received $500, a certificate of recognition, and complimentary registration for the EB 2001 meeting. Awards were presented during the APS Business Meeting at EB 2001. Awardees were:

Tracy Baker, Univ. of Wisconsin, Madison
Lone S. Bertelsen, Univ. of California-San Diego
Jerome W. Breslin, Univ. of Medicine and Dentistry, NJ
Robert W. Brock, Univ. of Western Ontario
Emily L. Chan, Univ. of TX Southwestern Med.Center
Xuequn Chen, Univ. of Michigan
Marc Egli, Centre Hospitalier Univ. Vaudois
Pietro R. Galassetti, Vanderbilt Univ.
Ian N. Hines, Louisiana State Univ.
Greta L. Hoetzer, Univ. of Colorado
Fruzsina K. Johnson, Tulane Univ.
Steven P. Jones, Louisiana State Univ.
Prasad V.G. Katakam, Univ. of Iowa
Carissa M. Krane, Univ. of Cincinnati
Edward Wolfgang Lee, Georgetown Univ.
Wen Li, Univ. of Mississippi
Xiaorong Liu, Medical College of Wisconsin
Pamela Lloyd, Univ. of Missouri-Columbia
Christopher J. Madden, Univ. of Pittsburgh
Sarah D. McCarter, Univ. of Western Ontario
Carol Moreno, Medical College of Wisconsin
Melissa M. Morse, Medical College of Wisconsin
Patrick J. Mueller, Univ. of Missouri-Columbia
Beth A. Nordby, Temple Univ.
Michael J. Ryan, Univ. of Iowa
Rachel D. Smetanka, Univ. of Iowa
Anna Solowiej, Yale Univ.
Christina M. Spofford, Medical College of Wisconsin
James S. Swaney, Univ. of California, San Diego
Mark K. Todd, Univ. of Southern California
Zoltan I. Ungvari, New York Medical College
Bas W. M. van Balkom, Katholieke Universiteit Nijmegen
Shi-Qiang Wang, NIH/National Institute on Aging
Erica Wehrwein, Western Michigan University
Shao-Ling Zhang, Univ. of Montreal
Matthew C. Zimmerman, Univ. of Iowa ❖

Caroline tum Suden/Frances Hellebrandt Professional Opportunity Awardees.

Procter & Gamble Professional Opportunity Awards

Once again, the APS has been able to recognize the valuable contributions of predoctoral students to the science of physiology as a result of a generous contribution provided by the Procter & Gamble Company. Students who were first authors on an abstract submitted to EB 2001 in Orlando, FL were eligible to apply for the Procter & Gamble Professional Opportunity Award through one of the 12 Sections of the Society. Award recipient selection was made by the Sections, and the number of awards each Section made was based on the number of applications submitted. Each awardee received $500, a certificate of recognition, and complimentary registration for the Experimental Biology meeting. They were presented their awards at the APS Business Meeting at EB 2001. Awardees were:

Cardiovascular Section
Matthew J. Huentelman, Univ. of Florida
Steven P. Jones, Louisiana State Univ.
Michael B. Kim, Univ. of Rochester
Kevin Monahan, Pennsylvania State Univ.
Melissa M. Morse, Medical College of Wisconsin
Christina M. Spofford, Medical College of Wisconsin
Cell & Molecular Physiology Section
Julie L. Ponthier, Louisiana State Univ.
Comparative Physiology Section
Peter Piermarini, Univ. of Florida
Endocrinology & Metabolism Section
Joshua C. Anthony, Pennsylvania State Univ.
Environmental & Exercise Physiology Section
Paige C. Geiger, Mayo Clinic & Foundation
Gastrointestinal Section
Ian N. Hines, Louisiana State Univ.
Neural Control & Autonomic Regulation Section
Christopher J. Madden, Univ. of Pittsburgh
Renal Section
Traci Taylor, Medical College of Georgia
Respiratory Section
Le Ann Blomberg, Georgetown Univ.
Teaching of Physiology Section
Theresa L. O'Donaughy, Univ. of New Mexico
Water & Electrolyte Homeostasis Section
Kathleen Beutler, NHLBI, NIH ❖

Procter & Gamble Awardees.

NIDDK/NIGMS Minority Travel Fellowship Awards

The APS has awarded Travel Fellowships to minorities to attend the Experimental Biology meeting each spring since 1987. These travel awards are supported by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and the National Institute of General Medical Sciences (NIGMS). Awardees are provided with funds for transportation, meals, lodging, and complimentary meeting registration. The APS Porter Physiology Development Committee reviews and selects applicants for this award. This year, 45 minority students and postdoctoral fellows were selected from 64 applications to receive fellowships, enabling them to attend EB 2001 in Orlando, FL.

Travel Fellows in this APS program frequently cite the pairing of each Fellow with an APS member to serve as his/her mentor for the duration of the EB meeting as one of the most valuable components of the fellowship. Mentors offer guidance on appropriate sessions to attend, introduce Fellows to other scientists, and provide career advice. This component helps Fellows to maximize their time and more fully experience the many aspects of EB. One student made the following comment in the follow-up evaluation: "This was my first EB meeting and I think it was worth attending. I met some very helpful and interesting scientists. I gathered a lot of information from the meeting that (will) help me fine-tune my hypotheses and improve my experimental procedures." Another student wrote that the fellowship "…gives me the opportunity to interact/socialize with leaders in the research community. It is fun and reinforces my desire to become a scientist." In their comments, Fellows often expressed their appreciation that the program provides not just financial assistance, but professional guidance, as well. The mentors who volunteered this year are much appreciated

for offering their time and expertise, especially the numerous APS members who have made this contribution for many years in a row.

Fellows and their mentors attended a closing luncheon at EB to hear from guest speakers and to receive certificates honoring their successful participation in the program from **Martin Frank**, APS Executive Director. Fellows saw the luncheon as a welcome opportunity to compare notes on their scientific activities of the week. **D. Euan MacIntyre** of Merck Research Laboratories, a generous contributor to APS fellowship programs, spoke to the audience about career possibilities in industry, and APS member **Evangeline Motley** of Meharry Medical College then gave a well-received talk about the value of looking at all possibilities that arise while advancing through different career stages.

The travel awards are open to graduate students, postdoctoral students, and advanced undergraduate students from minority groups underrepresented in science (i.e., African Americans, Hispanics, Native Americans, and Pacific Islanders). Students must be US citizens or permanent residents. The specific intent of this award is to increase participation of pre- and postdoctoral minority students in the physiological sciences. For more information, contact the APS Education Office at 301-530-7132 or educatio@aps.faseb.org, or visit http://www.the-aps.org/education/minority_prog/index.htm on the APS website.

EB 2001 AWARDEES WERE:

Erwin Bautista, Univ. of California, Davis
Jabbar Bennett, Meharry Medical College
Richard Beswick, Univ. of Michigan
Robert Carter III, Univ. of North Texas
Sonya Coaxum, Univ. of Michigan
Nancy Correa-Matos, Univ. of Illinois at Urbana-Champaign
Peter Daudu, Univ. of Pennsylvania
Martin Farias III, Univ. of North Texas
Marcelo Febo, Univ. of Puerto Rico School of Medicine
Karen Feng, Univ. of Arizona
Patrizia Flores, New Mexico Highlands Univ.
Billie J. Foote, Fort Belknap College
Karesa R. Fox, Fort Belknap College
Gerald Frank, Vanderbilt Univ.
Rayna Gonzales, Univ. of New Mexico
Orlando Gonzalez, Univ. of Puerto Rico
Paul Gray, Univ. of California, Los Angeles
Hantz Hercule, Texas Southern Univ.
Gerardo Hernandez, Ponce School of Medicine
Gerald Herrera, Univ. of Vermont
Vallie Holloway, Florida A&M Univ.
Allison Ivy, Meharry Medical Center
Theresa John, Univ. of Illinois at Chicago
Kristen Kaba, Univ. of Rochester
Ollie Kelly-Appleberry, Emory Univ.
Keri Kles, Univ. of Illinois at Urbana-Champaign
Terrence Lewis, Delaware State Univ.
Joseph Lopez, Vanderbilt Univ.
Johnalyn Lyles, Univ. of Maryland, Baltimore
Edward Medina, Univ. of California, Davis
Maria Medina, Univ. of California, Davis
Catherynne Morgan, Univ. of Arizona
Donna Ortiz, New Mexico Highlands Univ.
Rudy Ortiz, Univ. of California, Santa Cruz
Omar Quintero, Duke Univ. Medical Center
Christie K. Redmon, Meharry Medical College
Jayne Reuben, Florida A&M Univ.
Cassandra Reyes, Univ. of Illinois at Urbana-Champaign
Cherilynn Reynolds, Meharry Medical College
John Scheel, Univ. of California, San Diego
Christopher Selhorst, Univ. of California, Santa Cruz
Dean Snow, Fort Belknap College
Andra Stevenson, Univ. of Vermont
Torry Tucker, Univ. of Alabama at Birmingham
Julia Wilkerson, Univ. of Wisconsin at Madison

EB 2001 MENTORS WERE:

Francisco H. Andrade, Case Western Reserve Univ.
Mouhamed S. Awayda, Tulane Univ.

NIDDK/NIGMS Minority Travel Fellow Awardees.

NIDDK/NIGMS Minority Travel Fellow Awardees.

Babu Balagopal, Nemours Children's Clinic
Susan M. Barman, Michigan State Univ.
Kathleen H. Berecek, Univ. of Alabama at Birmingham
Eldon J. Braun, Univ. of Arizona
Steven Britton, Medical College of Ohio
William M. Chilian, Medical College of Wisconsin
Parimal Chowdhury, Univ. of Arkansas for Medical Sciences
Margaret Colden-Stanfield, Morehouse School of Medicine
John Cuppoletti, Univ. of Cincinnati
Dipak K. Das, Univ. of Connecticut
Michael J. Davis, Texas A&M Univ.
Karen Fagan, Univ. of Colorado
Barbara Goodman, Univ. of South Dakota
Eddie L. Greene, Mayo Clinic
Pamela J. Gunter-Smith, Spelman College
Lisa M. Harrison-Bernard, Tulane Univ.
Thomas C. Herzig, Uniformed Services Univ.
Cynthia Jackson, Univ. of West Georgia
Irving G. Joshua, Univ. of Louisville
Lauren Gerard Koch, Medical College of Ohio
Ulla Kopp, Univ. of Iowa
Klaus Ley, Univ. of Virginia
Owen McGuinness, Vanderbilt Univ.
Evangeline Motley, Meharry Medical College
Suhayla Mukaddam-Daher, Univ. of Montreal
C. Leo Ortiz, Univ. of California, Santa Cruz
Adebayo Oyekan, Texas Southern Univ.
C. Subah Packer, Indiana Univ. School of Medicine
Richard J. Paul, Univ. of Cincinnati
David Robertshaw, Cornell Univ.
Mohammed Sayeed, Loyola Univ.
Colleen R. Talbot, California State Univ., San Bernardino
Richard C. Vari, Univ. of North Dakota
Alice R. Villalobos, Univ. of Rochester
Peter Wagner, Univ. of California, San Diego
Marian Walters, Tulane Univ. ❖

APS Executive Director Martin Frank with speakers Evangeline Motley and D. Euan MacIntyre, Merck.

Explorations in Biomedicine 2001 Summer Research Teacher Awards

The APS Education Office is pleased to announce the 2001 awardees of the Explorations in Biomedicine summer research program for science teachers. This program works with science faculty and teachers at Montana colleges and schools serving Native American reservations to create an atmosphere that encourages science studies, the exploration and pursuit of biomedical research careers, and opportunities for students to interact with biomedical researchers across the nation. This year, two science teachers will work in the laboratories of APS members during the summer, attend a one-week retreat to explore inquiry-based teaching, develop an inquiry-based lab activity for publication, and attend Experimental Biology 2002.

More information about this program is available at http://www.the-aps.org/education/expl/index.htm.

Explorations in Biomedicine 2001 Awards:

Eric Myers
Ashland Public School, Ashland, MT
Research Host: Amy J. Davidoff, Ph.D., University of New England, Biddeford, ME

Teresa Romo
Wolf Point Junior/Senior High School, Wolf Point, MT
Research Host: Thomas C. Herzig, Ph.D., Uniformed Services University, Bethesda, MD

Experimental Biology 2002
April 20-24, 2002 New Orleans, LA

Physiology InFocus
Translating the Genome: Physiology and Pathosphysiology of Obesity
Organizer: John E. Hall

Gene-Environment Interactions in Obesity
Theodore Kurtz and James Hill

Neurobiology of Obesity
William Haynes and Michael Schwartz

Endocrine/Metabolic Consequences of Obesity
Barbara Horwitz and Barbara Kahn

Obesity and Cardiovascular Regulation
Allyn Mark and John Hall

Section Distinguished Lectureships

August Krogh Distinguished Lectureship of the APS Comparative Physiology Section
Lecturer: **Albert F. Bennett**, University of CA, Irvine
Title: *Experimental Evolution: Generating Biological Novelty for Functional and Genetic Anayses*

Carl Ludwig Distinguished Lectureship of the APS Neural Control & Autonomic Regulation Section
Lecturer: **Suzanne Oparil**, Univ of Alabama, Birmingham
Title: *The Anterior Hypothalamic Area: Gatekeeper in the Pathogenesis of Salt-Sensitive Hypotension*

Carl W. Gottschalk Distinguished Lectureship of the APS Renal Section
Lecturer: **Bliss Forbush**, Yale University

Claude Bernard Distinguished Lectureship of the APS Teaching of Physiology Section
Lecturer: **Penelope Hansen**, Memorial University, Newfoundland
Title: *Physiology's Recondite Curriculum*

Joseph Erlanger Distinguished Lectureship of the APS Central Nervous System Section
Lecturer: **Celia Sladek**, Finch University of Health Sciences, Chicago Medical School
Title: *Regulation of the Neurohypophyseal System: Neurotransmitter, Neuropeptide, and Steroid Hormone Interactions*

Julius H. Comroe Jr. Distinguished Lectureship of the APS Respiration Section
Lecturer: **Norman Staub**, Stinson Beach, CA
Title: *Prevention and Treatment of Pulmonary and Systemic Responses to Endotoxin: Whole Animal Physiology Redux*

Solomon A. Berson Distinguished Lectureship of the APS Endocrinology & Metabolism Section
Lecturer: **Bruce M. Spiegelman**, Dana-Farber Cancer Institute

Robert M. Berne Distinguished Lectureship of the APS Cardiovascular Section
Lecturer: **David Harrison**, Emory University
Title: *Regulation of Vasomotor Tone by Redox Status: Physiological and Pathophysiological Implications*

Hugh Davson Distinguished Lectureship of the APS Cell & Molecular Physiology Section
Lecturer: **Harvey F. Lodish**, Whitehead Institute for Biomedical Research, MIT
Title: *ACRP30 and Fatty Acid Transport Proteins- New Approaches to Obesity and Diabetes*

Ernest H. Starling Distinguished Lectureship of the APS Water & Electrolyte Homeostasis Section
Lecturer: **Richard Lifton**, Yale University
Title: *Genetics, the Kidney and Hypertension*

Horace W. Davenport Distinguished Lectureship of the APS Gastrointestinal Section
Lecturer: **John A. Williams**, University of Michigan
Title: *Regulation of The Synthesis and Secretion of Pancreatic Digestive Enzymes by Diet and Hormones*

Edward F. Adolph Distinguished Lectureship of the APS Environmental & Exercise Physiology Section
Lecturer: **Peter D. Wagner**, University of California, San Diego
Title: *Maximum Oxygen Consumption and its Limitation: the Good, the Bad and the Molecular*

Societal Lectures

Physiology in Perspective: The Walter B. Cannon Memorial Award Lecture
Allen W. Cowley, Jr., Medical College of Wisconsin

Henry Pickering Bowditch Award Lecture
Pontus B. Persson, Johannes-Müller Inst for Physiol of Charité Berlin
Title: *Control of Renin, From Cell Lysates to the Conscious Dog*

The Walter C. Randall Lecture in Biomedical Ethics
TBD

FASEB Excellence in Science Award Lecture
Phyllis Wise, University of Kentucky College of Medicine
Title: *Estrogens: Potent Protective Factors in the Adult and Aging Brain*

Section-Sponsored Symposia

Hypoxia, Ischemia, Na, Ca, and Cytoprotection
Steve Anderson

Common Brainstem Mechanisms of Cardiovascular and Respiratory Control
W.W. (Bill) Blessing and J. Michael Wyss

Physiology of Physical Inactivity's Induction of Chronic Disorders.
Frank W. Booth and John Holloszy

Sex and Nonsex - Estrogen and the Aging Hypothalamus
John T. Clark

Incorporating Case Studies in the Physiology Classroom
William H. Cliff

Role of Endothelin ET_B Receptors in Cardiorenal Function
Gregory D. Fink

Comparative Models to Understanding Molecular Mechanisms of Solute Transport
Greg G. Goss

Mechanisms of Estrogen Effects on the Cardiovascular System
David R. Gross

Functional Heterogeneity in the Renal Microcirculation
Lisa M. Harrison-Bernard and Rodger D. Loutzenhiser

Mechanisms of Vascular Remodeling: Temporal Events From Stimulus to Structural and Functional Changes
Michael A. Hill and Gerald Meininger

New Developments in Renal Acid-Base Transport and Its Regulation
Mark A. Knepper and Susan Wall

Ion Channels and Hypoxia
Diana L. Kunze

Role of Myostatin in Regulating Muscle Growth
Se-Jin Lee

Molecular and Cellular Mechanisms of Ischemic Liver Injury
Alex B. Lentsch

Disorders of Sodium Transport and Blood Pressure Regulation
Stuart Linas

Cardiac Fibroblasts and Heart Failure
Pamela A. Lucchesi and Willa Hseuh

Adaptive Responses of Cardiac Muscle
Ruben Mestril

The Sudden Infant Death Syndrome, Sleep, and Breathing
Eugene Nattie

Redox Control of Skeletal Muscle Adaptation
Michael B. Reid and Scott K. Powers

Viruses, Ion Channels and Ion Transporters
John M. Russell

New Paradigms in Neovascularization
Gina C. Schatteman and Takayuki Asahara

Apoptosis and Organ Injury Mechanisms in Hypertension
Geert W. Schmid-Schonbein and Matthew A. Boegehold

Epithelial Channels: Regulation by Differentiation and Growth Factors
James D. Stockand and Stanley Rane

Neural Control of the Cerebral Circulation
William T. Talman

Bioinformatics in Physiological Genomics
Peter Tonellato

Mesenchymal-Epithelial Interactions in Lung Development and Repair-Are Modeling and Remodeling One and the Same Process?
John S. Torday

Genetic Adaptation to Cold
Lawrence Wang

Cellular Biomechanics in the Lung
Christopher M. Waters

Estrogen: a Potent Neuroprotective Factor
Phyllis M. Wise

Section-Sponsored Featured Topics

Muscle Fatigue
William Ameredes and Thomas M. Nosek
Formation of Epithelia in the Embryonic Kidney
Jonathan Barasch
Insights Into Epithelial Transport Physiology Gleaned From Interactions with Intestinal Pathogens
Kim Barrett
Signal Transduction Mechanisms for O_2 Homeostasis
Barbara S. Beckman and Nanduri Prabhakar
Eicosanoids and Fever
Clark M. Blatteis and Wieslaw Kozak
Energy Metabolism in Skeletal and Cardiac Muscle
Marco Cabrera
Neural Mechanisms Impacting Sodium Balance and Arterial Pressure in Hypertension and Heart Failure
Heimo Ehmke
Molecular Bases of Local Calcium Signaling
J. Kevin Foskett
Regulation of Vascular Tone: Parallel Versus Redundant Control Mechanisms
Jefferson C. Frisbee
Applications of Physiological Genomics: The Discovery of Novel Genes for Volume and Pressure Regulation
Andrew Greene
Physiological Genomics: Transgenic Models and Gene Regulation
Kenneth W. Gross and Robin L. Davisson
Redox Regulation of Vascular Function-Berne Lecture Featured Topic
David Harrison
Epithelial Calcium Channels: From Identification to Physiology and Pathophysiology
Matthias Hediger
Interfacing Molecular and Integrative Physiology of the Kidney: Na Transporters and Channels in Complex Disease Models
Mark Knepper
Microvascular Regulation in Genetic and Acquired E-NOS Deficiency
Akos Koller
Exercise-Induced Cardioprotection: Unique Insights From Cardiac, Smooth and Skeletal Muscle
Donna H. Korzick
Physiological Mechanisms of Neuronal Plasticity in the Mature Nervous System
Eve E. Marder and J. Michael Wyss
Protein Transport Across Lung Air-Blood Barrier
Asrar B. Malik
Membrane Transport Autoinhibitory Domains
Mark Milanick
Living at Extreme Temperatures: Genes to Organisms
Marina Marjanovic
Ventilator Induced Lung Injury: in vivo and in vitro Mechanisms
Michael Matthay
Helping Students Understand Physiology Through the Use of General Models
Harold Modell
Cardiovascular and Endocrine Control in Mice: A Mouse is Not a Small Rat
Marianna Morris
Integration of Volume Regulation and Cardiovascular Function, an Application of Comparative Physiology
Kenneth Olson
Physiological Genomics: Disease Gene Therapy
M. Ian Phillips and Curt D. Sigmund
Cardiovascular Genomics
Mohan K. Raizada and Kathleen Berecek
Oxygen Dependent Signaling in Pulmonary Vascular Smooth Muscle Cell
Usha Raj
Orthostatic Tachycardia and Hypotensive Syndromes
David Robertson
Skeletal Muscle Circulation: Neural and Mechanical Determinants-Wiggers Award Featured Topic
Loring B. Rowell
Chemoreflexes in Health and Disease: Recent Perspectives in Cardiovascular Control
Harold Schultz
Fetal Programming of Post-Natal Cardiovascular Regulation
Jeff Schwartz and Kent Thornburg
Gap Junctions in CO_2 Chemoreception
Irene C. Solomon and Jay B. Dean
Dietary Fat: Physiology and Metabolic Consequences
Patrick Tso
Proteinases: Novel Signaling Molecules in Gastrointestinal Function and Dysfunction
John L. Wallace
Sensory Afferents and Cardiovascular Regulation
Donna Wang and Steven Mifflin
Ontogeny of Cardiorespiratory Mechanisms: An Evolutionary Perspective
Stephen J. Warburton
History of Gastric Secretion
John B. West
Emerging Views of Epithelial Chloride Channels
N.K. Wills and P. Fong
Which Oxidase is the Most Important in Vascular Signaling?
Michael S. Wolin

Cross-Sectional Symposia

The Sensory Functions of the DEG/ENaC Superfamily of Ion Channels
Dale J. Benos and Bruce A. Stanton

Cell-Cell Crosstalk in the Generation of Inflammation
Jahar Bhattacharya

Translational Research in Preeclampsia and Pregnancy-Induced Hypertension
Raouf A. Khalil and Phyllis August

Vascular Consequences of Oxidant Stress
Bruce Pitt and Francis Miller

Guest Society Symposia

American Federation for Medical Research (AFMR)

The Promise for Therapeutic Intervention in Obesity: The Brain and Beyond
David D'Alessio

Potentiation of the Development of Atherosclerosis by Diabetes
Boris Draznin

Endothelial Dysfunction in End Stage Renal Disease
Michael Goligorsky and Christine Baylis

Diagnosis and Treatment with Atrial Natriuretic Metabolism
David L. Vesely

Biomedical Engineering Society

Bioengineering Approaches to Enhance Gene Delivery
Mark Davis

Nanotechnology in Bioengineering and Biology
Tejdal Desai

Manipulations to Enhance New Tissue Formation
Frank C-P. Yin

Spanish Physiological Society (SECF)

Cyclooxygenase-2 and Renal Function
F. Javier Salazar and Jurgen Schnermann

Association of Latin American Physiological Societies (ALACF)

Rhythms in Reproduction
Rosalinda Guevara-Guzmán and Robyn Hudson

Society for Experimental Biology and Medicine (SEBM)

The Role of Angiotensin and Oxidative Stress in the Development of Hypertension
Juan C. Romero

The Microcirculatory Society (MCS)

Microcirculatory Society President's Symposium: Signaling in Cells of the Microvascular Wall
Ingrid Sarelius

Microcirculatory Society Landis Award Lecture

Microcirculatory Society Young Investigator Session
David Stepp

Tutorials and Workshops

How to Be a Good Mentor; How to Be a Good Mentee
Susan M. Barman

Career Opportunities in Physiology: Taking The Next Step
Francis L. Belloni

How to Get Published in APS Journals
Dale Benos

Understanding Organ Function Through Real-Time Fluorescence Microscopy
Jahar Bhattacharya and Bruce Pitt

Refresher Course: Topics in Medical Neurophysiology
Cheryl M. Heesch and Thomas J. Cunningham

Physiology and Risk Assessment: Predicting Adverse Effects of New Chemicals on Critical Organ Functions
Lewis B. Kinter and Alan S. Bass

Techniques & Technology in Physiology Tutorial: Bioinformatics for the Physiologist
Peter Tonellato

APS Awards

The following APS Awards are available to the membership. For mor information and applications, please see the APS web site (http://www.the-aps.org/awards)

Ray G. Daggs Award

This annual award is presented to a physiologist who is judged to have provided distinguished service to the science of physiology and APS. Selection is made by Daggs Award Committee. The recipient receives an honorarium of $500, a plaque, and expenses to participate in the EB meeting. The Award is presented at the Society Business Meeting.

Orr E. Reynolds HistoryAward

Deadline: December 1

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

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

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

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

Manuscripts should conform to the style used in APS journals. Manuscripts should be sent to the Orr E. Reynolds Award, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991, by **December 1**. The award will be presented at the Society Business Meeting.

Senior Physiologist Award

The Senior Physiologist Fund has been set up through the generosity of family andformer graduate students and postdoctoral fellows of G. Edgar Folk to provide assistance to senior physiologists, 70 years or older, who no longer have grant funds available to them. The awards, in the amount of $500, might be used for such purposes as attending an APS meeting to present a paper, engaging in a series of modest experiments, or completing a manuscript. Recipients will be selected with the assistance of the Senior Physiologists Committee. Names of awardees will not be made public. When the award was established, it was for the Senior Physiologists Committee "to have fun assisting colleagues and for Emeritus APS members to keep in closer touch with APS."

Research Career Enhancement Awards

Deadlines: April 15 and October 15

The APS Career Enhancement Awards are designed to enhance the career potential of APS members. The awards provide up to $4,000 for individuals in the early phases of their careers to obtain special training and in the later phases of their careers to develop new skills and to retrain in areas of developing interests. The awards can be used to support short-term visits to other laboratories to acquire new skills and to support attendance at courses devoted primarily to methodologies appropriate for both new investigators and more senior investigators entering a new field of research.

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

Teaching Career Enhancement Awards

Deadlines: April 15 and October 15

The Teaching Career Enhancement Awards are designed to enhance the career potential of regular members. The awards provide up to $4,000 to develop innovative and potentially widely applicable programs for teaching and learning physiology.

The awards can be used to support short-term visits to other schools to consult with experts who can assist with the project or attendance to courses on methodologies appropriate for the educational development project.

Regular members in good standing may submit an application form including: *1*) a 2-page description of the proposed project, including the aim, the educational problem that the project is designed to ameliorate, identification of the innovative aspects, a plan to evaluate the educational outcomes, and the kinds and sources of expertise needed by the to carry out the project; *2*) an anticipated budget with justification for fund requests; *3*) a letter of support from the applicant's department chair or other appropriate individual; *4*) letters of agreement from individual or departmental hosts of schools to be visited; *5*) description or outline of courses to be attended; and *6*) a brief curriculum vitae focused on activities and achievements related to education.

Successful applicants are expected to report, in print or at a physiology conference, a description of the project and its evaluation. Awardees are encouraged

to submit reports for publication in *Advances in Physiology Education*.

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

Deadline: November 1

The Giles F. Filley Memorial Fund was established to recognize excellence in respiratory physiology and medicine. The awards are made to investigators holding an academic rank no higher than assistant professor and are pursuing research in respiratory physiology and medicine. Each award is for approximately $25,000 and is designated for awardee's use in his/her research program. Awards do not include any indirect cost reimbursement.

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

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

Arthur C. Guyton Awards for Excellence in Integrative Physiology

Deadline: November 1

The Arthur C. Guyton Fund was established in to recognize Guyton's contributions and interests in feedback, modeling, and integrative physiology. The awards are made to independent investigators, who hold an academic rank no higher than assistant professor, and are pursuing research that utilizes integrative approaches to the study of physiological function and explores the role of feedback regulation in physiological function.

An unrestricted $15,000 award is designated for the use of the awardees in their research programs. Awards do not include any indirect cost reimbursement. Applications are accepted from regular members of APS.

The awards will be announced during the APS Business Meeting held at the Experimental Biology meeting. The recipients receive reimbursement for their expenses to attend the meeting and a certificates recognizing their designation as Arthur C. Guyton Awardees.

Shih-Chun Wang Young Investigator Award

Deadline: November 1

The Shih-Chun Wang Memorial Fund was established in 1998 in memory of Shih-Chun Wang, the Pfeiffer Professor of Pharmacology at Columbia University and a long-standing member of The American Physiological Society. Wang was internationally recognized for his research contributions in the areas of neurophysiology and neuropharmacology with an emphasis on brain stem control mechanisms. The Award will be made annually to an individual demonstrating outstanding promise based on his/her research program in the physiological sciences. Applications will be accepted from APS members working within the United States and holding an academic rank no higher than assistant professor. The award is $12,000 and is for the use of the awardee in his/her research program. The award does not include any indirect cost reimbursement.

The awards will be announced during the APS Business Meeting held at the Experimental Biology meeting. The recipients receive reimbursement for their expenses to attend the meeting and a certificates recognizing their designation as Shih-Chun Wang Awardees.

Lazaro J. Mandel Young Investigator Award

Deadline: November 1

The Lazaro J. Mandel Young Investigator Award was established in 1999 in memory of Lazaro J. Mandel, professor of physiology at Duke University and long-standing APS member. The Mandel Young Investigator Award will be made annually to an individual demonstrating outstanding promise based on his/her research program in epithelial or renal physiology. Applications will be accepted from members of APS working within the United States and holding an academic rank no higher than assistant professor. The award is for $12,000 and is designated for the use of the awardee in his/her research program. The award does not include any indirect cost reimbursement.

The awards will be announced during the APS Business Meeting held at the Experimental Biology meeting. The recipients receive reimbursement for their expenses to attend the meeting and a certificates recognizing their designation as Lazaro J. Mandel Awardees.

John F. Perkins, Jr., Memorial Fellowships

Deadlines: May 15 and November 15

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

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

Application should be made by both

the visiting scientist and his/her host. To qualify, the host must be a member of the APS. The application should contain an account of these arrangements with a brief description of the proposed scientific work and an account of how visitors and their families intend to make use of cultural opportunities during their stay. Deadlines for receipt of applications are May 15 and November 15. Applications are available from the Executive Director, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991, USA.

APS Postdoctoral Fellowship in Physiological Genomics

Deadline: January 15

The APS, initially in collaboration with Genentech, Inc., designed a postdoctoral fellowship program to promote careers in mammalian organ system physiology. In 1993, the APS-Genentech Postdoctoral Fellowship was established in recognition of the fact that many advances in cell and molecular will ultimately require an understanding in the context of the organism, and special training will be needed to conduct this type of research. A central criterion is that the postdoctoral project uses the tools of cellular and molecular biology in the setting of the whole animal. In 1996, APS made the commitment to continue supporting the Fellowship without the support of Genentech.

Candidates must identify a laboratory and sponsor under whose supervision a project in mammalian organ system physiology and molecular biology can be combined. The award is for a two-year period and includes an annual stipend ($30,000) and a trainee allowance of $3,500.

Three awards are made per year.

William T. Porter Fellowship Awards

Deadlines: January 15 and July 15

This award is designed to support the training of talented students entering a career in physiology and to provide predoctoral fellowships for minority students, postdoctoral fellowships, and limited sabbatical leave aid for faculty members of predominantly black schools who wish to update their expertise in physiology. In addition, funds have been made available to lectureships and laboratory equipment to develop teaching consortia linking predominantly black colleges with medical schools in the same area. Summer research fellowships are also awarded for minority undergraduate opportunities for physiological research.

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

Minority Travel Fellowship Awards

Deadline: November 13

NIDDK Travel Fellowships for Minority Physiologists are open to under-represented minorities who are advanced undergraduate, pre-doctoral, and postdoctoral scientists, including students, who have obtained their undergraduate education in Minority Biomedical Research Programs and MARC-eligible institutions, as well as students in the APS Porter Development Program. Applications may also be submitted by minority faculty members at the above institutions. Funds will provide transportation, meals, and lodging to attend the annual spring Experimental Biology meeting. The specific intent of this award is to increase participation of the pre- and postdoctoral minority students in physiological sciences. Applicants need not be members of the APS but should be US citizens or hold permanent resident visas. With the application form, candidates should include *1*) a brief curriculum vitae; *2*) a letter of recommendation from the applicant's advisor; and *3*) an estimate of required travel and per diem expenses. Faculty applicants should also include a statement of current and pending support.

Caroline tum Suden/ Frances A. Hellebrandt Professional Opportunity Awards

Deadline: November 7

The APS Caroline tum Suden Professional Opportunity Awards ($500, and complimentary registration) are granted to as many as 36 graduate students or postdoctoral fellows who present a contributed paper at the EB meeting. Candidates must be the first author of an abstract submitted to APS and either the candidate or the abstract sponsor must be a member of APS. The candidate must submit the following: a copy of his/her abstract; the *Award Certification Form* which indicates the student status and approximate date the nominee will be available for employment; and a one-page letter written by the candidate stating his/her career goals; his/her research goals, role in the research described in the abstract, and reasons why he/she is deserving of the award. The letter should NOT restate the abstract. Successful abstracts typically include: a clearly stated hypothesis or aim; the technical approach to the study; the pertinent results obtained with quantitative and statistical comparisons, when appropriate; and a clearly stated conclusion, including the significance of the results to the field. Candidates may submit ONE abstract for consideration. Awardees will be notified prior to March 1, 2002 and must be present at the APS Business Meeting to receive their award.

AAAS Mass Media Science and Engineering Fellowship

Deadline: January 15

APS will sponsor an AAAS Mass Media Science and Engineering fellow who will spend 10 weeks over the sumer working for a newspaper, magazine, radio or television newsroom. The program includes a one-week orientation in Washington, DC to help fellows develop their ability to communicate scientific issues to nonscientists. Applicants must be currently enrolled as a graduate or postgraduate student of physiology or a related discipline.

The fellowship will include expenses for traveling to sessions and the job site as well as a weekly stipend based on the local cost of living. ❖

Distinguished Lectureship Awards

The 12 Distinguished Lectureship Awards are named after outstanding contributors to the disciplinary areas of physiology. The recipient is chosen by the section as a representative of the best within the discipline. The annual lecture is presented at the EB meeting. Each recipient receives an honorarium of $1,000 and up to $2,000 to cover travel expenses.

The 12 named Lectureships are:

Robert M. Berne Distinguished Lectureship of the Cardiovascular Section

Hugh Davson Distinguished Lectureship of the Cell and Molecular Physiology Section

Joseph Erlanger Distinguished Lectureship of the Central Nervous System Section

August Krogh Distinguished Lectureship of the Comparative Physiology Section

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

Edward F. Adolph Distinguished Lectureship of the Environmental and Exercise Physiology Section

Horace W. Davenport Distinguished Lectureship of the Gastrointestinal Section

Carl Ludwig Distinguished Lectureship of the Neural Control and Autonomic Regulation Section

Carl W. Gottschalk Distinguished Lectureship of the Renal Section

Julius H. Comroe, Jr., Distinguished Lectureship of the Respiration Section

Claude Bernard Distinguished Lectureship of the Teaching of Physiology Section

Ernest H. Starling Distinguished Lectureship of the Water and Electrolyte Homeostasis Section.

Liaison With Industry

Deadline: November 7

The **Liaison With Industry Novel Disease Model Award** ($500/graduate student; $800/postdoctoral fellow) will be granted to the graduate student and postdoctoral fellow submitting the best abstracts describing a novel disease model. The model can be cellular or in vivo but should clearly emphasize the potential utility of the system for future research related to a disease process. A copy of the submitted abstract, accompanied by the signed and completed *APS Award Certification Form* should be sent to: Linda Allen, Membership Services, APS, 9650 Rockville Pike, Bethesda, MD 20814-3991 by **November 16, 2001**.

Procter & Gamble Professional Opportunity Awards

Deadline: November 7

The Procter & Gamble Professional Opportunity Awards ($500 and complimentary registration for the EB meeting) are granted to at least 12 predoctoral students who present a contributed paper at the meeting. Candidates must be the first author of an abstract submitted to APS and within 12-18 months of completing his/her PhD degree. The candidate must be a student member of APS, have an advisor who is an APS member, or have a supporting sponsor who is an APS member. All recipients must be US citizens or hold a permanent resident visa. Awardees will be notified prior to March 1, 2002 and must be present at the APS Business Meeting to receive their award. Selection of the awardees will be made by the Sections of the APS. The candidate must submit the following to Andrea Jackson, APS Education Office, 9650 Rockville Pike, Bethesda, MD 20814: a copy of his/her abstract submission; and the *APS Award Certification Form*.

Awardees are selected by the following sections of APS: Cardiovascular, Cell & Molecular Physiology, Central Nervous System, Comparative Physiology, Endocrinology & Metabolism, Environmental & Exercise Physiology, Gastrointestinal, Neural Control & Autonomic Regulation, Renal, Respiration, Teaching of Physiology, and Water & Electrolyte Homeostasis.

Cardiovascular

The **Cardiovascular Section Young Investigator Travel Award** ($500) is designed to entice submission of abstracts to the Experimental Biology meetings from junior investigators and to aid them in their travel expenses. To be eligible, the investigator must be within 10 years of receiving his/her PhD or MD degree and have submitted a first-authored abstract to a Cardiovascular Section topic category. Abstracts from eligible individuals will be judged by the Cardiovascular Section Awards Committee and a total of up to nine each year which are judged to be the most meritorious will be awarded. Eligible individuals are requested to email a copy of their submitted abstract to the Chair of the Cardiovascular Section Awards Committee: George Cooper, cooperge@musc.edu, to arrive by November 30, 2001.

The **Cardiovascular Section Young Investigator Award** is intended for members, but not necessarily fellows, of the Section who have received a PhD, MD, DSc, DVM, or DDS degree with an academic rank or equivalent not higher than that of Assistant Professor who have already made a substantive independent contribution and hold future promise but are not, as yet, well established. The nomination package, to be sent to the chair of the Awards Committee of the APS CV Section, should consist of a letter of nomination, a seconding letter (preferably from someone outside of the nominee's institution), and a CV of the candidate.

The **Carl J. Wiggers Award** (plaques, presents lecture at EB), named in honor of teh CV Section's founder, is presented to a scientist who is a fellow of the CV Section and has made outstanding and lasting contributions to cardiovascular research. The selection is made by the Steering Committee. The nomination package, to be sent to the chair of the Awards Committee of the APS CV Section, should consist of a letter of nomination, a seconding letter (preferably from someone outside of the nominee's institution), and a CV of the candidate.

Cell and Molecular Physiology

The **Cell and Molecular Physiology Student Awards** ($300) are available for up to two pre-doctoral candidates, depending on applicant pool. One award will be given for work done while enrolled as a medical or graduate (doctoral or masters) student. A second award is reserved for undergraduate researchers. Applicants must be first author on an abstract submitted to the Experimental Biology meeting. The student or their mentor must be a member in good standing of the APS, with a primary affiliation in the Cell and Molecular Physiology section. Members of the CAMP Steering Committee will review all applications. Winners will be announced, and awards presented, at the Cell and Molecular Section Banquet at the EB meeting. Applicants must complete the Student Award Certificate form and have the mentor submit a brief (e.g. half page) letter describing why the trainee is deserving of the award. Email or fax a copy of the sub-

mitted abstract, the *APS Award Certification Form*, and letter to Peter K. Lauf, MD, email: peter.lauf@wright.edu, Fax: 937-775-3769. Deadline is **November 30, 2001**.

The **Cell and Molecular Physiology Young Investigator Awards** ($500) will be given to two successful candidates for work performed while in the first through third postdoctoral year or medical residency. Applicants must be first author on an abstract submitted to the Experimental Biology meeting. The trainee or their mentor must be a member in good standing of the APS, with a primary affiliation in the Cell and Molecular Physiology section. Members of the CAMP Steering Committee will review all applications. Winners will be announced, and awards presented, at the Cell and Molecular Section Banquet at the EB meeting. Applicants must complete the *APS Award Certification Form* and have the mentor submit a brief (e.g. half page) letter describing why the trainee is deserving of the award. Email or Fax a copy of the submitted abstract, the *APS Award Certification Form*, and letter to Peter K. Lauf, MD, email: peter.lauf@wright.edu, FAX: 937-775-3769. Deadline is **November 30, 2001**.

Central Nervous System

The **Central Nervous System (CNS) Section** of the APS will provide at least two awards ($500 each and complimentary advance registration fees) for recognition of meritorious research by young investigators who participate in the annual Experimental Biology Meeting. To qualify for this award, the applicant must have received a PhD or other professional degree within the past 10 years and must present a poster or talk at the EB meeting. The subject matter of this presentation can by any topic related to the central or peripheral nervous system. Applications are reviewed and rated by the CNS Section Awards Committee. To apply for this award, the applicant should submit four copies of the abstract (or a paragraph describing his/her research if it is to be presented in a symposium) and a letter indicating the novelty of the research project described in the abstract, the year he/she received a degree, current position, and whether he/she is a member of the APS. Membership in the APS is not required but is highly recommended. Mail these items by **January 31, 2002** to the Chair of the CNS Section Steering Committee: Susan Barman, Department of Pharmacology & Toxicology, Michigan State University, B429 Life Science Building, East Lansing, MI 48824-1317.

The **Central Nervous System Section Van Harreveld Memorial Award** ($300) will be presented by the CNS Section to recognize outstanding research in neuroscience by a graduate student or postdoctoral fellow. The recipient must be first author on an abstract presented at the meeting. Mail copy of the submitted abstract and the completed *APS Award Certification Form* to Sue Barman, Dept of Pharmacology & Toxicology, Michigan State Univ, East Lansing, MI 48824-1317. Deadline for application is **November 7, 2001**.

Comparative Physiology

The **Comparative Physiology Section Scholander Award** (cash award or prize and a certificate) will be presented to an outstanding young investigator presenting a paper in the "Scholander Award" session during the EB meeting or the specialty meeting of the Comparative Section. Applicants must submit their abstract to the "Scholander Award Session" topic category, be first author on the abstract and not more than five years past the highest degree.

The **Comparative Section Young Investigator Award** ($500) will provide three travel awards for recognition of meritorious research by young investigators who participate in the Experimental Biology meeting. Candidates must have completed their PhD within the past 10 years, be a member of APS, and must present a talk or poster at the Experimental Biology meeting. The subject matter can be any topic that deals with comparative physiology. Applicants should submit their abstract, abstract submission confirmation page, a one-page CV, and a one-page summary of research accomplishments and goals via email to: Chair of the Comparative Section by **January 15, 2002** for review by the section Steering Committee. The winners will be notified by email by February 15, 2002, and the award will be presented at the Business Meeting of the Section during the EB meeting.

Endocrinology and Metabolism

The **Research Award of the Endocrinology and Metabolism Section** (certificate plus cash prize, depending on funds available) is intended to recognize graduate student, resident or postdoctoral fellow who presents the best abstract for research in the area of endocrinology and metabolism at the Experimental Biology Meeting. Applicants must be first author on a submitted abstract and should mail a copy of the abstract, the completed *APS Award Certification Form*, and a letter from the sponsor of the abstract indicating the training status of the individual to: Charles Lang, Dept of Cellular & Molecular Physiology, Pennsylvania State Univ. College of Medicine, Hershey, PA 17033-0850. Abstracts will be judged for scientific content by a committee comprised of the E&M Section members. The successful candidate will be notified approximately 30 days prior to the Experimental Biology Meeting and will be presented the award during the Endocrinology & Metabolism Section Business Meeting. Deadline for application is **November 7, 2001**.

The **Endocrinology & Metabolism Section Young Investigator Award** ($500) is presented to one or more pre-doctoral graduate students whose investigations in endocrinology and metabolism physiology has been designated by the Steering Committee as being an example of meritorious research. The recipient must be first author on a submitted abstract to the Endocrinology & Metabolism Section (see Physiology topic category list under the heading "Endocrinology & Metabolism Section"), and be certified by his/her advisor as being eligible for such an award. A copy of your abstract submission and a completed *APS Award Certification Form* should be mailed to: Charles Lang, Dept of Cellular & Molecular Physiology, Pennsylvania State Univ. College of Medicine, Hershey, PA 17033-0850. Deadline for application is **November 7.**

Environmental and Exercise Physiology

The **EEP Honor Award** (plaque, $1,250, reimbursement of registration fee, opportunity to be featured speaker at the Awards Banquet of the Section) recognizes a previous or current primary member of the Section who has made significant research contributions to the advancement of environmental, exercise, or thermal physiology while enhancing the education objectives of the EEP Section.

The **Gatorade Beginning Investigator Award** ($750, reimbursement of the regis-

tration fee, and an EEP Banquet ticket) is presented to a postdoctoral fellow or equivalent whose investigation in either environmental, exercise, or thermal physiology has been designated by the Steering Committee as an outstanding example of experimental research. The recipient must be first author on a submitted abstract to the EEP Section at the Experimental Biology meeting, answer a questionnaire from the Steering Committee, have received their advanced degree within four years of the date of the abstract deadline, and be present at the EEP Section Awards Banquet. A copy of your abstract submission and a completed *APS Award Certification Form* should be mailed to: Kenneth Baldwin, Dept. of Physiology & Biophysics, University of California, Irvine, CA 92697. Deadline for application is **November 7, 2001**.

The **Gatorade Young Investigator Award** ($600, reimbursement of the registration fee, and an EEP Banquet ticket) is presented to a pre-doctoral graduate student whose investigation in either environmental, exercise, or thermal physiology has been designated by the Steering Committee as an outstanding example of experimental research. The recipient must be first author on a submitted abstract to the EEP Section at the Experimental Biology meeting, certified by his/her advisor as being eligible for such an award, answer a questionnaire from the Steering Committee, one who has not received an advanced degree at the date of the abstract deadline, and be present at the EEP Section Awards Banquet. A copy of your abstract submission and a completed *APS Award Certification Form* should be mailed to: Kenneth Baldwin, Dept. of Physiology & Biophysics, University of California, Irvine, CA 92697. Deadline for application is **November 7, 2001**.

The **EEP Recognition Award** ($500) is presented to one or more predoctoral graduate students whose investigations in either environmental, exercise, or thermal physiology has been designated by the Steering Committee as being an example of meritorious experimental research. The recipient must be first author on a submitted abstract to the EEP Section at the Experimental Biology meeting, and be certified by his/her advisor as being eligible for such an award. A copy of your abstract submission and a completed *APS Award Certification Form* should be mailed to: Kenneth Baldwin, Dept. of Physiology & Biophysics, University of California, Irvine, CA 92697. Deadline for application is **November 7, 2001**.

The **Environmental & Exercise Physiology Section Military Physiology Award for Beginning Investigators** ($750) recognizes outstanding research in either environmental, exercise, or thermal physiology by a postdoctoral fellow or equivalent that is relevant to the physiological missions of the US Armed Forces. Applicants must have received their advanced degree within four years of the abstract submission date and must be first author on an abstract submitted to an EEP Section topic category at the Experimental Biology meeting. The award recipient must attend the EEP Section Awards Banquet to receive the cash prize and certificate. A copy of your abstract submission and a completed *APS Award Certification Form* should be mailed to: Kenneth Baldwin, Dept. of Physiology & Biophysics, University of California, Irvine, CA 92697. Deadline for application is **November 7, 2001**.

The **Environmental & Exercise Physiology Section Graduate Student Military Physiology Award** ($600) recognizes outstanding research in either environmental, exercise, or thermal physiology by a graduate student that is relevant to the physiological missions of the US Armed Forces. Applicants must be first author on an abstract submitted to an EEP Section topic category at the Experimental Biology meeting. The award recipient must attend the EEP Section Awards Banquet to receive the cash prize and certificate. A copy of your abstract submission and a completed *APS Award Certification Form* should be mailed to: Kenneth Baldwin, Dept. of Physiology & Biophysics, University of California, Irvine, CA 92697. Deadline for application is **November 7, 2001**.

Gastrointestinal

Gastrointestinal Physiology Section Student Prize ($500) is designed to challenge and reward trainees who are engaged in gastrointestinal research. Two awards will be made at the Experimental Biology Meeting. One will be given for work done while enrolled as a doctoral or medical student. A second award will be given for work performed during the first through third postdoctoral years or during a medical residency. In order to be considered, the applicant must be first author on an abstract submitted for the meeting and either the applicant or sponsor must be a member of APS. A copy of the abstract, accompanied by the signed and completed *APS Award Certification Form* should be sent to Hugh Nellans, GI Pharmacology & Oral Drug Delivery, Abbott Laboratories, Dept 46V, Bldg AP9, 100 Abbott Park Road, Abbott Park, IL 60064-6122 to arrive on or before **January 15, 2002**.

The **Abbott Distinguished Research Award for Excellence in Gastrointestinal Physiology** (plaque, $1,000, present lecture at GI Section's annual Business Meeting and Reception) recognizes a scientist who has carried out highly meritorious research in gastrointestinal or liver physiology. The recipient is chosen by the GI section Steering Committee. The Section membership is encouraged to submit nomination, which should be sent to the Chair of the Steering Committee. Nominations consist of a cover letter outlining the candidate's qualifications for the award and his/her CV.

The **Gastrointestinal Section Young Investigator Awards** will provide travel support ($500) for junior investigators to participate in the annual Experimental Biology meeting. To be eligible for the award, the investigator must be within 10 years of receiving a higher degree (PhD, MD or DVM), and must submit an abstract to a Gastrointestinal Section topic category. To apply for the award, applicants should submit their abstract and a brief statement of research accomplishments by **January 31, 2002** by Email to Helen E. Raybould, Chair of the GI Section Steering Committee at heraybould@ucdavis.edu.

Neural Control and Autonomic Regulation

The Michael J. Brody Young Investigator Award of the APS Neural Control and Autonomic Regulation Section ($500), sponsored by Merck & Co., recognizes a promising young investigator who has made a significant research contribution to the understanding of neural control and autonomic regulation. The award is open to graduate students (post-candidacy exams), postdoctoral fellows, and clinical fellows who present and are first author on an abstract at Experimental Biology. Either the applicant or the abstract sponsor must be a member of APS. Applicants must mail a copy of the submitted abstract; the completed *APS Award Certification Form*; a list of

publications; a one-page summary and evaluation of research contributions, written by the applicant, and a cover letter signed by both the applicant and sponsor indicating the date, or expected date, of highest degree. The deadline for receipt of applications is **December 28, 2001**. Send applications to Jeanne L. Seagard, Research Service 151, VA Medical Center, 5000 West National Avenue, Milwaukee, WI 53295.

The **Neural Control and Autonomic Regulation (NCAR) Young Investigator Awards** will provide travel support ($500) to junior investigators to present meritorious research at the annual Experimental Biology Meeting. To be eligible, the investigator must have a PhD, MD, or other professional degree with an academic rank or equivalent not higher than that of Assistant Professor and conduct either basic or clinical research in a field of neural control and autonomic regulation. Junior faculty members are particularly encouraged to apply for this award. To apply, the investigator must submit a first-authored abstract to any appropriate neural control topic of the Experimental Biology meeting. Award criteria will be based on current work reflected in the abstract and overall contributions to the field. A copy of the abstract and a CV from the investigator must be mailed by **January 31, 2002** to the Member-at-Large of the NCAR Steering Committee, Dr. William Talman, Professor, Department of Neurology, University of Iowa Hospital, 200 Hawkins Drive, Iowa City, IA, 52242-1053. The abstracts will be judged by the NCAR Steering Committee and the most meritorious applications will be awarded.

Renal

The **Robert W. Berliner Award for Excellence in Renal Physiology (**$1,000 plus reimbursement for travel expenses for the Experimental Biology meeting), sponsored by Abbott Laboratories, is given to an outstanding senior researcher and educator in renal physiology.

The **Aventis Pharmaceutical Excellence in Renal Research Awards** are sponsored by Aventis Pharmaceutical and designed to promote and develop excellence in research pertaining to molecular, cellular, or organ mechanisms involving the kidney. Awards are presented to two categories of students: predoctoral students (including graduate students and medical students) and postdoctoral fellows. Award recipients must be first authors on an abstract submitted to a Renal Physiology topic category for programming at the Experimental Biology Meeting. Prior to the meeting a first level of evaluation is conducted based on the submitted abstract; a subset of abstracts are further judged during oral presentation at the meeting. Award winners are announced at the annual Renal Dinner held in conjunction with the meeting. Students and fellows are strongly urged to participate in the award process. Mail completed *APS Award Certification Form* and a copy of the submitted abstract to: Susan E. Mulroney, Department of Physiology, Georgetown Univ. Sch. of Med., 3900 Reservoir Road, NW, Washington, DC 20007-2187. Deadline for applications is **November 7, 2001**.

The **Renal Section Young Investigator Awards** will provide at least two awards ($500 each) for recognition of meritorious research by young investigators who participate in the annual Experimental Biology Meeting. To qualify for this award, the applicant may not be a senior faculty member, i.e., may not have a faculty rank of Associate or Full Professor, and may not have won this award in previous years. Candidates should either be an author on an abstract submitted to the EB meeting or agree to submit a late-breaking abstract if they did not submit one originally and they are selected for this award. Applications will be reviewed and rated by the Renal Section Awards Committee. To apply for this award, please submit a copy of the submitted abstract or a note agreeing to do so if selected, and a note indicating your current position. If you plan to submit an abstract only if selected for this award, please include a note explaining this decision. Alternatively, Renal Section members may nominate candidates for this award by submitting the above items. Membership in the APS is not required, but awardees will be encouraged to join if they are not members. The awards will be presented at the annual Renal Dinner during the EB meeting. Send these items by **January 31, 2002** to the Chair of the Renal Section Award Committee: Dr. Susan Mulroney, by mail: Department of Physiology, Georgetown University, 3900 Reservoir Road, NE, Washington, DC 20007, fax: 202-687-7407, or email: mulrones@georgetown.edu

Respiration

No sectional award is given by the Respiration Section. However, the Steering Committee acts as the review body for the Giles F. Filley Memorial Awards for Excellence in Respiratory Physiology and Medicine.

Teaching of Physiology

The **Arthur C. Guyton Physiology Teacher of the Year Award** (plaque, $1,000, and expenses of up to $750 to attend EB) is sponsored by the W. B. Saunders Company. Nominees must be full-time faculty members of accredited colleges or universities and members of APS. 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 at the local community, national or international levels. Each nominee must be nominated by a member of APS. The nominator is responsible for completing application materials and forwarding six copies to the chairperson of the Award Selection Committee. The award winner is announced at the APS Business Meeting at the Experimental Biology meeting.The awardee is requested to write an essay on his/her philosophy of education for publication in *The Physiologist.*

The **Teaching of Physiology Section** ($500) will provide two travel awards for outstanding posters presented in the Teaching of Physiology poster-discussion session at Experimental Biology. Submission of a poster to this session does not exclude the simultaneous presentation of a research poster or talk. To qualify for this award, the applicant must be first author on the poster, and age 40 or under OR within 10 years of receiving the PhD or MD. Applicants must also be APS regular, affiliate, or student members. Abstracts will be reviewed and rated by the Teaching Section Steering Committee. All poster abstracts must be formally submitted to EB by the application deadline. To apply for this award, please send a copy of your abstract submission and a completed *APS Award Certification Form* to: Dee U. Silverthorn,

Neurobiology Section, University of Texas at Austin, Austin, TX 78712-1064. Deadline for application is **November 7, 2001**.

Water and Electrolyte Homeostasis

The **Young Investigator Award in Regulatory and Integrative Physiology** (present a short lecture on his/her research during a scientific session of the EB meeting) was established to encourage young investigators to continue research careers in cardiovascular, reanl and neuroendocrine integratoin. The award is presented annually at the business luncheon of the Water and Electrolyte Homeostasis Section to a young investigator (<40 years old) who has made important contributions to our understanding of the integrative aspects of cardiovascular, renal, and neuroendocrine physiology in health or disease. Any member of APS in good standing may apply or be nominated for the award. Applications will be reviewed by the Section's Award Committee and should include a curriculum vitae of the nominee, a brief (one-page) summary and analysis of the research contributions of the nominee, a complete list of publications, and two letters of nomination from members of APS.

The **Water & Electrolyte Homeostasis Section Young Investigator Travel Award** ($500) will provide support for travel expenses for junior investigators to attend the annual Experimental Biology Meeting. To be eligible, the investigator must be either a pre-doctoral student or within ten years of receiving his/her PhD or MD degree. Applicants must be first author on an abstract submitted to an APS Water & Electrolyte Homeostasis Section topic category. The WEH Steering Committee will judge the abstracts. Applicants are requested to send a copy of their submitted abstract to Tom Lohmeier, Dept. of Physiology & Biophysics, Univ. of Mississippi Med. Ctr., 2500 North State Street, Jackson, MS 39216-4505, fax: 601-984-1817; email: tlohmeier@physiology.umsmed.edu by **January 15, 2002**. ❖

Gift Planning Opportunities

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

If you are interested in including the APS and its Endowment Fund in your financial or estate planning, some options include:

✺ Immediate Gifts: Cash, gifts of appreciated securities, gifts of closely held stock, gifts of tangible personal property, retirement assets, charitable lead trusts and gifts of real estate.

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

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

✺ Designated Gifts: Gifts given to honor or memorialize an individual or an organization and can include scholarships, programs, etc., which are specified for support and named for individuals.

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

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

Call for Nominations: The 2003 Henry Pickering Bowditch Lecture

The annual Bowditch Lecture honoring the first President of the American Physiological Society, Henry Pickering Bowditch, has been given at the annual meeting since 1956.

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

Nominations should be accompanied by letters from two nominators describing the importance of the candidate's work, a brief sketch of the nominee's professional history, papers or manuscripts that substantiate the excellence of the candidate, and a curriculum vitae.

Nominations should be submitted by **October 1** to: The APS Bowditch Lecture Award, 9650 Rockville Pike, Bethesda, MD 20814-3991. ❖

Call for Nominations: The 2003 Walter B. Cannon Memorial Lecture

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

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

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

Summer Research Teachers and Research Hosts Honored at Luncheon

The 2000 APS Frontiers in Physiology and Explorations in Biomedicine Summer Research Teachers and their APS member Research Hosts were honored at a Luncheon during Experimental Biology 2001. Teachers were presented certificates of achievement, and their Research Hosts were presented certificates of appreciation for their participation in the 12-month fellowship.

A special certificate of recognition was presented to Robert Foreman, University of Oklahoma Health Science Center, by APS president John Hall. The certificate recognizes Dr. Foreman's exceptional K-12 outreach efforts, serving as an APS Research Host to six Frontiers in Physiology Summer Research Teachers from Oklahoma middle and high schools since 1990. Thousands of Oklahoma students have heard these teachers describe how biomedical research is done and the excitement of being involved in "doing" research.

Frontiers in Physiology and Explorations in Biomedicine are APS programs designed to create ongoing relationships between research scientists and middle and high school teachers; and to promote the adoption of the National Science Education Standards for K-12 science content and pedagogical techniques among middle and high school teachers. The Explorations in Biomedicine project works intensively with the science faculty at Montana schools and tribal colleges that serve Native American students to create an atmosphere that encourages science studies, and the exploration and pursuit of biomedical research careers.

The Summer Research component offers teachers nationwide a full-time, hands-on laboratory experience for 7-8 weeks at APS members' research labs. Teachers also attend a one-week retreat at the Airlie Center in Warrenton, VA, where they explore hands-on, inquiry based teaching strategies, consider classroom equity and technology-use issues, and begin to develop their own inquiry lab activities. In the spring following their research experience, teachers attend Experimental Biology to learn of the latest science research findings, meet with physiologists, and tour the posters and exhibits.

Frontiers in Physiology is a program of APS, and is sponsored by APS, the National Center for Research Resources (NCRR), Science Education Partnership Awards (SEPA), and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) at the National Institutes of Health. The Explorations in Biomedicine program is administered through a partnership between APS and the American Indian Research Opportunities (AIRO) consortium of Montana tribal colleges and Montana State University-Bozeman, Bozeman, MT.

More information about these programs is available on the APS website at http://www.the-aps.org/education/edu_k12.htm. ❖

APS President John Hall presents Robert Foreman, University of Oklahoma Health Science Center, a certificate of recognition for his outstanding service to the APS Frontiers in Physiology program.

Orlando Science Teachers and Students Participate in Physiology Workshop at Experimental Biology

Orlando area high school teachers and students participated in the Physiology for Life Sciences Teachers and Students Workshop on Monday, April 2nd, at the Orange County Convention Center and Peabody Hotel. The workshop was designed to offer participants an opportunity to learn about current research findings, explore hands-on, inquiry based lab activities, learn about education and careers in biomedicine, meet with APS researchers, and tour the posters and exhibits.

Anne E. Kwitek Black, Medical College of Wisconsin, presented, "Physiological Genomics in High Blood Pressure: SNPs, Chips, and Salty Potato Chips" an introduction to gene function in diseases such as high blood pressure, obesity, and diabetes.

Susan Barman, Michigan State University, moderated a Careers in Physiology Panel Discussion where Cherilynn Reynolds, Meharry Medical College; Orlando Gonzalez, University of Puerto Rico; and Gerald Frank, Vanderbilt University, shared their

experiences in academia and research and presented information on careers in biomedicine.

Participants then joined APS members for a box lunch and a tour of the posters and exhibits, where they were introduced to the latest research findings and scientific equipment. For many students, this was the first time they met with a "real scientist." Each year, students comment that this is their favorite workshop activity.

After lunch, teachers participated in a Teacher In-service Workshop, where Frontiers in Physiology Summer Research Teacher, Sue Diggs, Lubbock High School, Lubbock, TX, presented "Substrate Selection by Ghost Shrimp," a hands-on exploration of the behavior of ghost shrimp under artificial conditions.

Explorations in Biomedicine Summer Research Teacher, Mary Alice Thomas, Polson High School, Polson, MT, led teachers in "The Case of Billy Bob," a case-based learning activity that includes diagnosing a patient's illness and planning a course of treatment based on the patient's health history, health habits and symptoms, and medical test results.

APS Physiologists Barbara E. Goodman, Univ. of South Dakota School of Medicine led students in selected activities of the Physiology of Fitness learning cycle unit, a hands-on, inquiry-based exploration of factors which affect blood flow and pressure.

The Frontiers in Physiology program is designed to create ongoing working relationships between research scientists and middle/high school teachers via research and inservice experiences and electronic communications; and promotes the adoption of national standards for K-12 content and pedagogical techniques among middle and high school science teachers through ongoing inservice activities developed collaboratively by teachers and physiology research. Frontiers in Physiology is a program of APS, and is sponsored by APS, the National Center for Research Resources, Science Education Partnership Awards, and the National Institute of Diabetes and Digestive and Kidney Diseases at the National Institutes of Health.

The Explorations in Biomedicine project works intensively with the science faculty at Montana schools and tribal colleges that serve Native American students to create an atmosphere that encourages science studies, the exploration and pursuit of biomedical research careers, and opportunities for students to interact with biomedical researchers in their geographic area and across the nation. The overall goal of this project is to increase interest and participation in biomedical research careers among Native American students. Explorations in Biomedicine is a collaborative program of The American Physiological Society and the American Indian Research Opportunities Consortium and is supported by a grant from the NIH/National Institute of General Medical Sciences Minority Access to Research Careers Program.

For more information about these APS programs, please visit the APS website at: http://www.the-aps.org/education.htm. ❖

APS Recognizes Outstanding High School Science Students at the 52nd Annual International Science and Engineering Fair

The 52nd Annual International Science and Engineering Fair (ISEF) was held in San Jose, CA, on May 6-12, 2001, and brought together 1,205 of the top high school science students from the US as well as 38 other countries ranging from Armenia to Uruguay. Student finalists competed across 14 scientific disciplines, including biochemistry, environmental sciences, gerontology, medicine and health, physics, and zoology. They presented 842 individual and 172 team efforts in the hope of earning national recognition and a share of the $2.4 million awarded by ISEF's chief sponsor, Intel, and the Fair's 60 other affiliated societies, universities, and professional organizations. As in past years, the APS awarded cash prizes and student memberships to top participants whose projects fell within the broad definition of contemporary physiology. The APS was joined in the Special Awards category by the Andrus Foundation, Sigma Xi, the Endocrine Society, NASA, all branches of the Armed Forces, and many others.

The on-site judging team included APS President-elect **Barbara Horwitz** and **John Horowitz** from the Department of Neurobiology, Physiology, and Behavior at University of California, Davis, as well as **Stephen Flaim**, Vice-President for Research and Development at Galileo Laboratories in Santa Clara, CA. Joining them in San Jose's McEnery Convention Center were APS Education Committee members **George Ordway,** Department of Physiology at the University of Texas Southwestern Medical Center in Dallas, and **Andrew Lechner**, Department of Pharmacological and Physiological Science at St. Louis University School of Medicine in St. Louis. Lechner served as APS lead judge and awards presenter. The judging team first identified 60 candidate projects based on scientific content, before selecting ten students for in-depth interviews at their

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poster displays. Based on the scientific rigor of each study and the students' abilities to describe their work and answer questions from the team, the APS judges awarded first place to **Angela Catherine Lee** for her project, "Group 1 Metabotropic Glutamate Receptors in Epilepsy." Lee, a senior at Midwood High School in Brooklyn, NY, will use her $1,000 APS prize to pursue a Neuroscience major this fall at the University of Pennsylvania. To assist those undergraduate studies, she also earned an Intel ISEF 2nd place award (of $1,500) in Medicine and Health. The APS judges were most impressed with Lee's interpretation of her elegant electrophysiological recordings in hippocampal brain slices and their suppression with selective mGluR antagonists.

The APS Second Place Award of $500 went to **Eugenia Chu**, a senior at Evans High School in Evans, GA. Chu's project, "Neuroprotection and Neurotransmitter Release by a Dopamine D3 Receptor Agonist: Potential Antiglaucoma Drugs" was conducted in rat PC12 pheochromocytoma cells in which D3 receptors were identified by immunocytochemistry and Western blot analysis. Chu's other ISEF awards included Intel's First Place Award and Best of Category Prize in Gerontology, together worth $8,000. She will attend the University of Georgia this fall to begin a curriculum in biology/preprofessional studies.

Third and Fourth Place APS Awards of $500 each were earned respectively by **Effie M. Wang**, a junior at DuPont Manual Magnet High School in Louisville, KY, and **Alan R. Stern**, a sophomore at Great Neck South High School in Great Neck, NY. Wang's project, "Improved Pulmonary Function by Hypoxic Preconditioning Involves Endothelial Nitric Oxide Synthase and MCT1," demonstrated that exposing mice to brief periods of 6.5% O_2 increased expression of eNOS protein in the lung and enhanced intrapulmonary lactate utilization, while reducing edema formation. Stern's study, "Receptor for Advanced Glycation Endproducts (RAGE) and Cellular Perturbation in Alzheimer's Disease" involved crossbreeding strains of transgenic mice with targeted overexpression of either RAGE or a mutant form of amyloid precursor proteins. For his efforts Stern also was awarded an all-expenses paid trip to attend the upcoming World Congress of Gerontology in Vancouver, Canada.

In addition to these four finalists, the APS also awarded each of the other six interviewed students a one-year complimentary APS membership and subscriptions to *The Physiologist* and to *News in Physiological Sciences*. These additional students with projects of exceptional merit included: **Katherine A. Brezina**, a senior at Coral Reef Senior High School in Miami, FL ("Metabolic Changes in Hypercholesterolemic Rats Treated with Statin Type 3 HMG Reductase Inhibitors"); **Lissette A. Casas-Galban**, a senior at the American Military Academy in Guaynabo, Puerto Rico ("Inhibition of Vascular Endothelial Cell Proliferation by Filipin"); **Tyler Davidson**, a senior at William Henry Harrison High School in West Lafayette, IN ("Nitric Oxide Regulates Production of cGMP and GAP-43 Following Nerve Cord Damage in the Leech, *Hirudo medicinalis*"); **Hui-Tzung Luh**, a junior at Municipal Kaohsiung High School in Taiwan ("Search for Proteins Differentially Expressed During Tissue Regeneration of Tadpole Tail"); **Kawika A. Mortensen**, a senior at Kamehameha Secondary School in Honolulu, HI ("Microalgal Antioxidant Effects on an *In Vitro* Model of Atherosclerosis"); and **Yu-Ting Yuan**,

Andrew Lechner and George Ordway present APS awards to Angela Catherine Lee, Eugenia Chu, Effie M. Wang, and Alan R. Stern.

APS Judges: Stephen Flaim, John Horowitz, Barbara Horwitz, George Ordway, and Andrew Lechner

a senior at the National Kaohsiung Normal University High School in Taiwan ("Effects of Capsaicin on Free Radicals and Telomerase Activity in the J5 Human Hepatoma Cell Line"). In addition, the high school science mentors of the ten student awardees received APS subscriptions, CDs of K-12 lesson plans, and educational packets for use in their classrooms. ❖

Andrew Lechner
APS Education Committee Member

APS 2001 ISEF Awardees – Continued Success Leads to Choice Academic Paths

APS awardees at the 51st ISEF last year in Detroit, MI, comprised an equally impressive group of secondary school students. At that competition in 2000, **Ellyn A. Easley**, then a senior at Alamogordo Senior High School in Alamagordo, NM earned APS' First Place Award of $1,000 for her project, "Effects of Cryoprotectants on the Revivification of Frozen Insects." Easley's APS prize was announced the day before she garnered an additional $9,000 in scholarships from Intel and from the Office of Naval Research that she is now applying to her undergraduate studies at the University of New Mexico. The APS third place award in 2000 went to **Kimberly Jane Buehring**, then a junior at Banquete High School in Banquete, TX. Buehring also took home more honors last year for her project, "A Succulent Solution to a Burning Problem," including Intel's 3rd Place Award of $1,500 in Medicine and Health, plus a full tuition scholarship for up to five years to attend Drexel University. Returning to ISEF 2001 in San Jose as a senior, Buehring earned additional honors and awards for phase IV of her studies, worth over $3,000 from the US Air Force and the Patent and Trademark Office of the US Department of Commerce. Not to be outdone, **Ahmed S. Mousa** had earned the APS 2nd Place Award in 2000 as a sophomore at Avon Grove High School in West Grove, PA after taking the 4th place APS award in 1999 for his ongoing studies entitled, "Discovery of Angiogenesis Inhibition by Garlic." After winning more than $8,000 in cash and scholarships at ISEF 2000 last year, Ahmed went on to present two sole-author posters at the Experimental Biology meetings last March in Orlando, FL (*FASEB J.* 15:A117, 2001). This year in San Jose, the APS judging team paid a courtesy call on Mousa at the poster display of his latest research, "Anti-cancer Efficacy of Garlic: Cellular and Genetic Mediators". This newest effort earned him additional cash awards from Intel and the US Army as well as an $8,000/year scholarship at the University of the Sciences in Philadelphia. Mousa summarized the sentiments of many ISEF finalists when he thanked the APS membership profusely for the recognition and incentive that these awards provide.

The 53rd Annual ISEF is scheduled for May 5-10, 2002, in Louisville, KY. APS members wishing to volunteer to serve as local judges should contact Alta Wallington [(301) 571-0692; or by e-mail: awalling@aps.faseb.org] in the APS education office. Providing recognition awards to these deserving high school students is only one of the many ways in which APS supports pre-college science education. The APS also supports K-12 science educators with programs designed to increase science teachers' curriculum content and pedagogical skills. Among APS programs for such teachers are workshops and materials for K-4 teachers through the "My Health, My World" program coordinated with Baylor College of Medicine in Texas. Grant-funded programs, such as the "Frontiers in Physiology" and "Explorations in Biomedicine," support middle school and high school teachers who work during the summer directly with APS members in their research laboratories. "Explorations" is specifically designed for teachers in Montana who teach primarily Native American students. "Frontiers," which is offered to teachers nationwide, also supports local workshops on physiology topics for middle and high school science teachers. For more information about APS education programs, send your e-mail to: educatio@aps.faseb.org or visit our website at http://www.the-aps.org/education.htm. ❖

Moving?

If you have moved or changed your phone, fax, or email address, please notify the APS Membership Office at 301-530-7171 or fax to 301-571-8313. Your membership information can also be changed by visiting the Members Only portion of the APS website at http://www.the-aps.org.

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Introducing Ken Baldwin

Effective April 2001, **Ken Baldwin** succeeded **Charles M. Tipton** as the **Chair of the Exercise and Environmental Physiology (EEP) Section** of the APS. Prior to assuming this role Baldwin served on the Animal Care and Experimentation Committee from 1990-1993 and was the APS representative to the FASEB Consensus Coalition on Federal Funding of Biomedical Research in which he chaired the Subcommittee on NASA from 1997-2000. He also served on the program committees for the three APS- sponsored Biology of Exercise Specialty Conferences.

Ken Baldwin

Baldwin is currently Professor of Physiology and Biophysics, College of Medicine at the University of California, Irvine (UCI) where he has been located for the past 28 years. He did his undergraduate work at Springfield College in Massachusetts where he received his Bachelor of Science degree, Magna Cum Laude, in 1964. Following completion of the Master of Science degree in Biomechanics and Physical Education at the University of Massachusetts, Baldwin served briefly as an Instructor of Physical Education at Keen State University in New Hampshire and at the University of Massachusetts, Amherst. He then began studies in Exercise Physiology at the University of Iowa where he received his PhD in 1970 under the mentorship of C. M. Tipton. From 1970-73, Baldwin served as a postdoctoral fellow in the field of exercise biochemistry at Washington University School of Medicine in St. Louis under the direction of **John O. Holloszy**. Baldwin's pre-doctoral and postdoctoral research focused on the adaptive properties of different types of skeletal muscle in response to acute and chronic exercise stress.

After joining the faculty at UCI, Baldwin became interested in the effects of the microgravity environment on the structure and function of anti-gravity skeletal muscle. Although he initially received a grant from NASA in 1980 to study the effects of spaceflight on muscle mitochondrial function, it took him 11 years before completing this initial project, because of the lack of available flight opportunities during the initial stages of NASA's space lab program (hardly a good model in which to receive tenure in a research university). However, in the last decade he has had four flight opportunities in which to explore the effects of gravity on the mechanisms of a) atrophy processes in adult animals and b) muscle growth and differentiation processes in neonatal models. These studies laid the ground work for our current understanding that sarcomeric gene expression in antigravity skeletal muscle is highly regulated by the daily impact of gravity.

In addition to his space biology research, Baldwin has been funded continuously for over 20 years by both the National Institute of Heart, Lung, and Blood Diseases and the National Institute of Arthritis, Musculoskeletal, and Skin Diseases (NIAMS). This research has focused on interactive studies concerning hormonal and of activity/inactivity factors in the regulation of striated muscle myosin heavy chain gene expression. Baldwin has published extensively on this general theme in both the *American Journal of Physiology* and the *Journal of Applied Physiology*.

Based on his expertise in muscle biology, Baldwin has served key roles in the program activities and advisory councils of both the NIH and NASA. From 1987-1991 he served on the NIH Respiratory and Applied Physiology Study section, and he recently was appointed as a founding member of the newly formed Skeletal Muscle Biology Study Section. Also, he has served on several strategic planning workshops and Task Forces for NIAMS. Currently, he serves on the jointly sponsored NIH/NASA Biomedical and Behavioral Advisory Committee, which fosters joint research activities between the two agencies.

Within NASA, Baldwin chaired the Life Sciences Advisory Committee from 1994-2000 and currently serves as chair of the Biological and Physical Research Advisory Committee (1999-2001). More recently, he was appointed to the NASA Advisory Council, which is the highest ranking advisory group within the space agency. In 2000, he was appointed as the Muscle Atrophy Team Leader for overseeing countermeasure-related research within the NASA-sponsored National Space Biomedical Research Institute.

Over the years Baldwin has received several awards for his service and research activities including the NASA Group Achievement Award in Spacelab Sciences in 1992, the American College of Sports Medicine Citation Award in 1993, the APS Edward Adolph Award in Exercise and Environmental Physiology in 1998, and the NASA Public Service Medal in 1999.

Baldwin and the EEP Steering Committee, consisting of Clark Blatteis, Vic Convertino, Hal Laughlin, Kevin Kregel, Tim Musch, and Andy Young have established a number of goals for the next few years. These

include the continuation of the APS EEP Section as an international leader in the sponsoring of Exercise/Environmental Biology Specialty Conferences, which have been most successful under the past leadership of Peter Wagner. A second goal is to use the EEP as the primary vehicle for sponsoring cutting-edge symposia, poster sessions, and special topics that focus on mechanisms of molecular and cell biology, the integrated biology of activity/inactivity disorders, and the functional genomics of exercise and environmental physiology. Coupled to these program goals within the Section is an initiative to create a greater voice within APS in influencing and shaping the ongoing evolution of the peer review process for the review of exercise- and environmental sciences- focused research grant proposals at NIH. A fourth goal is to increase synergy between the EEP Section and other sections in APS such as the Cardiovascular and Comparative Physiology Sections and the Myobio Group in order to generate greater depth and breadth of integrated topics within the science program presented at the annual Experimental Biology meeting. Finally, the EEP must become postured to provide a voice of advocacy of supporting more research opportunities for activity, inactivity, and environmental factors that impact a variety of health problems facing society in the new millennium through its interactions with specific Institutes within the NIH and at NASA. Thus, there are many challenges facing the EEP and the time is ripe to address them. ❖

Introducing Michael L. Jennings

Effective April 2001, **Michael L. Jennings** succeeded **Robert B. Gunn** as the **Chair of the Cell and Molecular Physiology Section** of the APS. Jennings is Professor and Chairman of the Department of Physiology and Biophysics at the University of Arkansas for Medical Sciences (UAMS). He received his PhD in Biophysics from Harvard University in 1976, where he was a student of Arthur K. Solomon. Following a postdoctoral fellowship with Hermann Passow at the Max Planck Institut für Biophysik in Frankfurt, Germany, he joined the faculty at the University of Iowa in the Department of Physiology and Biophysics, headed by Robert E. Fellows. In 1987 he moved to the University of Texas Medical Branch in Galveston as Professor of Physiology and Biophysics in the department chaired by Luis Reuss. In 1995 he moved to UAMS, where he is in the process of building a department that, like those at Iowa and Galveston, is focused on cell physiology.

Jennings has been on the Editorial Board of *AJP:Cell Physiology* since 1984 and was on the Editorial Board of *Physiological Reviews* in 1985-93 (Associate Editor 1991-93). He was also on the Technical Books Committee

Michael L. Jennings

of the APS. He has been on several other editorial boards, including the *Journal of General Physiology*, *Journal of Biological Chemistry*, *Biochimica et Biophysica Acta*, and *American Journal of Kidney Diseases*. He was President of the Society of General Physiologists in 1997-98.

Jennings' main research interest is in the structure, function, and regulation of ion transporters, especially coupled exchangers and cotransporters. He and his associates have spent many years studying the topology and function of the erythrocyte anion exchange protein (band 3). Unlike many other transporters, band 3 can be studied at the molecular level not only by heterologous expression and mutagenesis, but also by biochemical analysis of the protein in the native red blood cell. His laboratory is using a combination of biochemical and kinetic approaches with red cells, as well as inducible expression in mammalian cells, to identify amino acid residues of functional importance and to define the elementary events in the catalytic cycle for transport.

Another interest in Jennings' laboratory is cell volume regulation. In addition to being a general problem in physiology, cell volume regulation is especially important in the context of sickle cell disease. Because of the high concentration dependence of the hemoglobin S gelation rate, a slight increase in red cell volume would significantly reduce the rate of sickle cell formation. Red cell volume is affected by a K^+-Cl- cotransport system that is stimulated by cell swelling and by several other interventions, some of which inhibit protein kinases. Although it is clear that red cell K^+-Cl- cotransport is regulated by phosphorylation events, the molecular details are poorly understood. Jennings is currently using a variety of experi-

mental approaches (knockout mouse RBC, yeast) to try to determine the identity and modes of regulation of the kinases and phosphatases that control K^+-Cl- cotransport.

Jennings is grateful to the previous Section Chair, **Robert B. Gunn**, the continuing Vice-Chair, **Martha E. O'Donnell**, and to the Cell/Molecular Steering Committee for the outstanding leadership they have provided over the past several years. Steering Committee members who have completed their terms are **Simon A. Lewis**, who was Program Advisory Committee Representative, and **Marshall H. Montrose**, who served as Councillor. **Kim E. Barrett**, Editor of *AJP:Cell Physiology* has provided outstanding service as ex officio Steering Committee member. In addition to **Martha O'Donnell**, the other continuing member is **Peter M. Cala**, who is Program Advisor. Newly elected Steering Committee members are **John Cuppoletti** (Councillor), **Peter K. Lauf** (Councillor), **Ronald M. Lynch** (Program Advisor), and **Caroline R. Sussman** (Postdoctoral Fellow Representative). Jennings very much looks forward to working with the new Steering Committee.

Jennings feels that the Cell and Molecular Physiology Section will continue to be of major importance to APS, because more and more investigators are using the techniques and approaches of cell physiology. Many biochemists and biophysicists who had previously worked exclusively on isolated molecules are now using optical imaging techniques to study molecular interactions in intact cells. An important mission of the Section is to maintain a high profile for cellular and molecular-level research in APS. The Section should help promote APS membership among current non-members who consider themselves to be biochemists, biophysicists, and cell biologists.

At the other end of the scale of biological complexity, individuals interested in integrative organ-system physiology now have the tools to study the cellular and molecular basis of organ function. The study of molecular function in living cells, i.e., cell/molecular physiology, will be an increasingly important facet of research in all organ systems. Jennings encourages APS members with primary affiliation in other sections to choose secondary affiliation in the Cell and Molecular Physiology Section.

One of the concerns of many members of the Cell and Molecular Physiology Section of APS is that there is a critical need for NIH Study Sections with expertise in and appreciation for cell physiology. Jennings was a member of the Physiology Study Section when it was disbanded as part of a preliminary reorganization of NIH Study Sections. In part because of the dissolution of the Physiology Study Section, there are currently not enough Study Sections that are "natural homes" for grants focused on cell physiology. Jennings feels that the Cell and Molecular Physiology Section of APS should be a strong voice urging NIH to ensure that cell physiology is properly represented in Study Section membership. ❖

Deadlines! Deadlines!

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

Award	Next Deadline
Research Career Enhancement Awards	October 15
Teaching Career Enhancement Awards	October 15
Shih-Chun Wang Young Investigator Award	November 1
Arthur C. Guyton Awards in Integrative Physiology	November 1
Giles F. Filley Memorial Awards for Excellence in Respiratory Physiology and Medicine	November 1
Lazaro J. Mandel Young Investigator Award	November 1
Procter & Gamble Professional Opportunity Awards	November 7
Caroline tum Suden/Francis A. Hellebrandt Professional Opportunity Awards	November 7
Liaison With Industry Award for Novel Disease Models	November 7
NIDDK Travel Fellowships for Minority Physiologists for EB Meeting	November 13
John F. Perkins, Jr., Memorial Fellowships	November 15
Orr E. Reynolds History Award	December 1

Persson Named Editor of *AJP: Regulatory, Integrative and Comparative Physiology*

Starting August 1, **Pontus B. Persson**, Professor and Chair of Cardiovascular Physiology at the Humboldt University of Berlin, will succeed **John E. Hall** as Editor of the *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*. In Heidelberg, the new Editor studied medicine and received his postdoctoral education at Ruprecht-Karls-University, which was supported by a scholarship from the "Studienstiftung des deutschen Volkes." Hartmut Kirchheim, his mentor, stimulated Persson's interest in baroreceptor reflexes, especially with regard to kidney function and blood pressure regulation. Baroreceptor denervation leads to extreme blood pressure variability. The fascinating patterns observed in the blood pressure traces led Persson to turn his attention toward spectral analysis, chaos and nonlinear modeling. Fortunately, the nonlinear parameters of blood pressure dynamics published in American Journal of Physiology were more reliable than Persson's personal forecast of the developments in the stock market development (unpublishable data). Early in his career, Persson was able to set up an independent research group with resources from the German Research Foundation (Gerhard-Hess-Award). After receiving the call for the Chair of Cardiovascular Physiology at the Humboldt University in Berlin in 1993, his work remained focused on the kidney and the cardiovascular system. Today his working group brings together techniques ranging from in vitro studies of renin gene translation in cell lysates using isolated perfused glomeruli of transgenic mice to the conscious dog, and, finally, research in human subjects.

Currently, Persson is the President of the German Physiological Society. Thus, several colleagues from North America may think that the upcoming Editor is German. Notably, colleagues

Pontus B. Persson

in Germany assume that Persson comes from the United States. Kinder Scandinavian peers, however, seem to accept him as a fellow Swede, which he is, although only his first years were spent in that country (Lund, 1962-1965). The confusion in citizenship has two sources: (1) his cheering in sports is opportunistic: ice hockey-Sweden, basketball-USA, soccer-Germany; (2) he has served as an editorial board member for Acta Physiologica Scandinavica, Pflügers Archiv and for the Heart and Regulatory sections of the *American Journal of Physiology*. The Regulatory, Integrative and Comparative Section has especially attracted his interest, since its wide scope reflects Persson's personal scientific development. The interaction of control systems as a whole, or, as Boyd and Noble coined it, "The Logic of Life", is the focus of his research efforts. The work of Persson and his group has been acknowledged by the Ruprecht-Karls-Award, the Young Investigator Award from the Water & Electrolyte Homeostasis Section, and will be highlighted by the Henry Pickering Bowditch Award Lecture of the American Physiological Society at EB 2002.

Where shall the *AJP-Regulatory, Integrative and Comparative Physiology* go from here? It will be important for the journal to reflect the newest trends of the field. We will therefore alter the subheadings to include "Regulation in Genetically Modified Animals", "Model Organisms and Comparative Functional Genomics" and "Development and Tissue Plasticity". To help shape platforms for important topics, "In Focus" reviews will very briefly outline 15-25 related articles published in this journal over the previous two years. The previous editorial group was very successful in recruiting excellent manuscripts related to ingestion and obesity. The future editors set out to enhance this development.

The submissions to the journal, to a large degree, are very international. The new Editorial Team has colleagues from many different countries. As a Consulting Editor, the Past President of the American Physiological Society, Gerald DiBona, will help guide the future direction of the journal. Thomas Lohmeier and Joey Granger, previous Associate Editors, will continue to serve on the editorial team. Allen Cowley, William Cupples, and Jürgen Schnermann will further strengthen the transatlantic ties. On the European side, Ole Skøtt is "our man in Scandinavia," while Heimo Ehmke and Holger Scholz become Associate Editors in Germany. Harald Stauss, a Special Editor for our Homepage and the new Forum page (starting January 2002), will recruit and monitor reader's letters and commentaries. John Pritchard will serve as Special Editor for Comparative Physiology and will provide us with direction in matters regarding manuscripts in that field in order to strengthen this important section of the Journal.

Persson looks forward to his Editorship and welcomes your submissions to *AJP-Regulatory, Integrative and Comparative Physiology*. ❖

Nebraska Physiological Society Holds Fourth Annual Meeting

The fourth annual meeting of the Nebraska Physiological Society was held on Friday, May 11, 2001 in the College of Pharmacy Auditorium at University of Nebraska Medical Center (UNMC), Omaha, Nebraska. The number of registered members (95) represents a record high, indicating a healthy growth of the Society. A significant number of members came from the Animal Science Department of University of Nebraska at Lincoln (UNL), thus making it a true meeting of Physiological Sciences. The number of posters presented also increased significantly from 24 to 36 this year. Another new highlight of this year's meeting was the introduction of Best Poster Award for students and postdoctoral fellows. A panel of five judges selected six finalists from approximately 20 participants in the competition. After the initial screening of the abstracts, selected posters were visited by each judge. The judging was based on *1*) quality of the work, *2*) clarity of presentation, *3*) intricacy of the work, and *4*) the knowledge of the presenter. While all selected posters were excellent, the award was presented to Beatrice Albrecht of Kansas State University, Manhattan, Kansas. This competition was a major event because it boosted the scientific morale among the meeting participants, especially among graduate students and postdoctoral research students. This new award was made possible because of the improved financial status of the Society. Our sincere thanks go to APS, and several vendors for their generosity in sponsoring the meeting. The scientific interaction was vigorous and information exchange remained unabated.

The meeting began at 9:30 AM with a welcome and a brief overview of the mission of the Society by **Pamela K. Carmines**, President of NPS. In light of the major impact that state government has on scientific research, Robert Bartee (Executive Assistant to the Chancellor, University of Nebraska Medical Center) was invited to provide an overview of the current and future directions that the legislature is taking for science in Nebraska. Bartee presented a clear view of the current state government policies and the role of UNMC, UNL, and Creighton University in shaping the future of science for the state. There are many areas of public awareness that need to be improved. There were several questions concerning the state's policy on fetal tissue research and mechanisms supporting research in different areas. Bartee also detailed how a substantial amount of research money generated by the state's share of tobacco settlement would be available to the three major schools in Nebraska that draw significant NIH funding. Bartee's talk was followed by the introduction of the Keynote Speaker and immediate Past-President of the American Physiological Society, **Gerald F. DiBona**, Professor and Vice Chairman, Department of Internal Medicine, University of Iowa College of Medicine. As the APS Lecturer, the APS sponsored DiBona's visit. The title of DiBona's talk was "*Neural control of the kidney: Functionality specific renal sympathetic nerve activity.*" His talk highlighted the role of nerves, particularly of sympathetic nervous system, in controlling blood pressure.

The poster session followed the talks and represented investigators from the Departments of Physiology and Biophysics, Pharmacology, Obstetrics/Gynecology and Ophthalmology at the University of Nebraska Medical Center, Department of Biomedical Sciences at Creighton University School of Medicine, Department of Biology, University of Nebraska at Kearney, Department of Animal Sciences, University of Nebraska-Lincoln, and USDA Meat Research Center. Physiological topics included ion channels, growth factors, hormone receptors, kinases, nitric oxide synthase, and cloning of porcine genes using microarrays. The interaction between people working in different areas of the physiological sciences was excellent, and many graduate and post-doctoral students got the opportunity to interact with each other, as well as with other investigators. Exhibition booths were set up by North Central Instruments to

Pamela K. Carmines, NPS President; Gerald F. DiBona, APS Lecturer; Irving Zucker, Chair, Dept. of Physiology, UNMC; and Martin Frank, APS.

NPS President Pamela K. Carmines congratulates APS Lecturer Gerald F. DiBona.

demonstrate fluorescent microscopy and image analysis, plus other types of microscopes used in biological research laboratories, and by Fisher Scientific highlighting various new products that are now being sold through Fisher with significant discounts to the universities. The exhibits were helpful additions to the meeting and gave participants a chance to interact with the company representatives. We were very grateful to North Central Instruments, Kendro Laboratory Products (Sorvall centrifuges and Heraeus incubators, etc.), Merck & Company, and Fisher Scientific for their sponsoring the meeting. Their financial help allowed us to defray some of the cost involved in arranging the annual meeting, including the abstract and program booklets. We are also grateful the UNMC Department of Physiology and Biophysics for sponsoring this year's meeting, and the College of Pharmacy for allowing us to use the auditorium free of charge, which contributed to a very successful meeting.

Following the poster session, lunch and the NPS business meeting were held simultaneously. Carmines opened the business meeting with a summary of the goals of NPS, which was followed by the Treasurer's report. **Shyamal K. Roy**, the outgoing Secretary-Treasurer, presented the current financial status of the NPS. The financial situation of the NPS has improved significantly since the last year with four sponsors for this year's meeting. The NPS budget started with a surplus and ended with an additional surplus. Roy emphasized that financial buffer was helpful to offset any future cost that might originate from printing abstract booklets, which was sponsored this year by Merck & Company. On behalf of the NPS, Roy thanked all sponsors for providing financial help and the Merck & Company for supporting the abstract booklet. There was no more discussion and the members unanimously accepted the Treasurer's report. Janet Steele provided a short presentation about physiology education in secondary schools and how to entice these teachers to attend the NPS meeting. Members of NPS were also asked to consider formation of a Local Outreach Team, an educational outreach program sponsored by the APS. The members voiced to increase the time for poster presentations so that everyone could view all posters. There was also a proposal to hold a joint meeting with the Iowa Physiological Society. Members agreed to hold the joint meeting, but expected to see adequate representation from the University of Iowa in the next meeting. Next, **Martin Frank**, APS Executive Director, spoke on "*APS: Shaping the Discipline in the New Millennium*." Frank narrated the present status of the APS and its vision and goals for the future. He mentioned that one of the recent goals of the Society was to increase the membership significantly, successfully achieving greater than 10,000 members by the end of the year 2000. However, the Society is constantly working to motivate more people to become members. The benefits include reduced rate of subscriptions for both paper and on-line journals, free color reproduction in Society journals, travel funds to attend meetings in the nation and abroad, and research funds for school and college teachers to teach physiology. Frank suggested boycotting the proposition to force free online journal access without any safeguard for copyright protection. He was afraid that this measure would erode the confidence of people that publish their work in the journal and undermine dues-paying members. He indicated the impact of molecular biology, especially the decoding of human genome, on future research. APS has already branched into the new areas by publishing journals covering molecular research. Frank was extremely impressed with the success of the NPS and the enthusiasm of its members to hold a serious annual meeting. He also praised the officials for their work in holding the meeting. DiBona added his praise for the Nebraska Physiological Society and was impressed with the variety of disciplines included, size of the meeting and the enthusiasm of participants.

The final order of business was the election of NPS officers and councilors for 2001-2002. David Petzel, Professor, Creighton University School of Medicine, replaced Pamela Carmines as President for the next year. Members submitted election ballots at the end of the meeting, which adjourned at 2:30 PM. Results of the election (no recounts were necessary) are as follows: President-Elect: Shyamal K. Roy (UNMC), Secretary/Treasurer: Janet Steele (UNK), Councillor, three-year term: Andrea Cupp (UNL); Councillor, one-year term: George J. Rozanski (UNMC).

The minutes of the fourth annual meeting of the NPS, as well as photographs, are also available at our website: http://www.unmc.edu/Physiology/nps. ❖

Shyamal K. Roy
Secretary-Treasurer
Nebraska Physiological Society

Interested in starting a chapter of The APS in your state?
For more information, contact Martin Frank, APS Executive Director, 9650 Rockville Pike, Bethesda, MD 20814; Tel 301-530-7118; Email: mfrank@The-APS.org.

House Acts to Extend Moratorium on USDA Rodent, Bird Regulations

On July 11 the House passed its version of the FY 2002 agriculture appropriations bill that included language to extend for another year a moratorium on USDA regulation of rats, mice, and birds. The provision bars the agency from spending funds to change the definition of "animal" used in the Animal Welfare Act regulations. House Agriculture Appropriations Subcommittee Chairman Henry Bonilla (R-TX) included the language to extend the moratorium. Subcommittee member Rep. George Nethercutt, Jr. (R-WA) was instrumental in making certain that the language remained in the bill during floor debate in the House. The Senate Agriculture Appropriations Subcommittee was expected to take up the language July 17. The moratorium will expire on September 30, 2001 unless Congress acts to renew it.

Last year Sen. Thad Cochran (R-MS), who was then the chairman of the Senate Agriculture Appropriations Subcommittee, added this language in conference to block the USDA from proceeding with an out-of-court settlement agreement that it had reached with the Alternatives Research and Development Foundation (ARDF), a group affiliated with the American Anti-Vivisection Society. With the change of majority in the Senate, Cochran became the senior or ranking Republican member of the Subcommittee, and Sen. Herbert Kohl (D-WI) is the new chairman.

The ARDF and several individual plaintiffs had sued the USDA in 1999 to force the agency to regulate rats, mice, and birds under the Animal Welfare Act (AWA). The language of the AWA requires the USDA to regulate six specific animal species (dogs, cats, nonhuman primates, guinea pigs, rabbits and hamsters) and gives the Secretary of Agriculture discretion to add regulations for other species of warm blooded animals used in research. The USDA has never sought to regulate rats, mice, and birds, nor has Congress ever instructed the agency to do so. However, animal activists have long wanted to change that policy.

The current situation began when the ARDF and several individuals petitioned the USDA to regulate rats, mice, and birds, arguing that as commonly used species of laboratory animals they ought to fall under the AWA. (Purpose-bred laboratory rodents account for perhaps 95% of the animals used in research.) The USDA published a Federal Register notice in on January 28, 1999, asking for public comments on the petitioners' request. The USDA noted that most of the animals in these species that are used in biomedical research are found in institutions that use the National Research Council's Guide for the Care and Use of Laboratory Animals. The Guide requires that research protocols be given prior ethical review by an Institutional Laboratory Animal Care and Use Committee and that all animal use be appropriate and humane. The USDA also noted that the size of the task was a consideration since its animal welfare enforcement program would be hard-pressed to conduct inspections of a large number of additional animals.

In its comments, the APS opposed USDA regulation of rats, mice, and birds at major biomedical research institutions as both unnecessary and burdensome. On the one hand, research with these animals at institutions that are federally funded or accredited by the Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC) already conforms to the strictures of the Guide for the Care and Use of Laboratory Animals. The addition of USDA standards under the AWA would not improve the quality of care those animals receive. On the other hand, AWA requirements would significantly add to compliance paperwork and would raise the costs of using these animals in research.

During the comment period on the Federal Register notice, the ARDF filed suit to compel the USDA to regulate rats, mice, and birds. The first issue that had to be resolved was whether the plaintiffs were entitled to challenge government regulations. Until recently, no individual had ever been granted standing to sue the government under the Animal Welfare Act. That changed with a 1998 ruling by the US District Court of Appeals for the DC Circuit in a case involving a challenge to USDA's regulations for the environmental enrichment of nonhuman primates. Even though that case was finally decided against the plaintiff on its merits, the precedent was established.

In June, 2000, US District Court Judge Ellen S. Huvelle granted one of the individual plaintiffs in the rats, mice, and birds legal standing, meaning that this plaintiff had passed the legal threshold test and would be allowed to sue the USDA over how it was enforcing the AWA with respect to rats, mice, and birds. The National Association for Biomedical Research (NABR) and Johns Hopkins University sought to join the USDA as defendants in the suit to challenge the plaintiff's standing on appeal. However, the court held this request in abeyance because, rather than continuing to fight the suit, the USDA entered negotiations with the ARDF to settle it. The research community also sought to join the settlement talks and was again excluded.

In late September the USDA and ARDF reached an out-of-court settlement in which the USDA promised to "initiate and complete" the rulemaking process with respect to the regulation of rats, mice and birds, and the ARDF

agreed to withdraw its suit. Although the USDA insists that the outcome of the rulemaking is not a foregone conclusion, having been excluded from the entire process leading up to the settlement, the research community sought congressional intervention. The University of Mississippi appealed to then-Chairman Cochran for assistance, and he responded by putting language into the USDA's funding legislation to block the settlement from taking effect. ❖

NIH Funding Increase Awaits Action

It is generally expected that Congress will wait until after its August recess to draft fiscal year 2002 spending plans for the NIH. This is because the House and Senate Appropriations Subcommittees that handle this legislation were given insufficient spending authority to provide increases for the priority programs under their jurisdiction, which include the NIH and education initiatives.

President Bush requested $23.2 billion for the NIH, an increase of $2.8 billion or 13.4% more than in FY 2001. Although this was a generous recommendation, it is still $500 million below the amount needed to keep the NIH on the path to a five-year doubling. The APS supports the FASEB consensus conference recommendation for a $23.7 billion NIH budget in FY 2002.

Infusions of spending authority at the last minute have become routine in Washington. However, there is concern on Capitol Hill because early reports indicate that government revenues may be lower than expected as a result of the tax cut and a slowdown in the economy. If the projected budget surplus turns out in fact to be a deficit, it would make it more difficult to provide the additional funds.

In addition, *The Washington Fax* reported on July 16 that the $2.8 billion increase was actually only about $2.3 billion because of funds that may be administratively transferred out of the NIIH into other HHS programs. It has been common practice for the Secretary of HHS to transfer up to 1% of funds from one agency to others such as the Agency for Healthcare Research and Quality and the National Center for Health Statistics. That authority is frequently exercised with respect to the NIH because it has the largest budget among the HHS discretionary programs.

However, the size of the transfers coming off the top of the NIH budget this year is drawing attention. According to *The Washington Fax*, some $469 million of the announced $2.8 billion NIH increase may end up in other programs. Because this would exceed the 1% transfer authority, the administration is also asking to increase the allowable amount to 2%. This year funds would be transferred not only for AHRQ and NCHS but also to help support data collection efforts at the Substance Abuse and Mental Health Services Administration and work at the HHS Office of Policy Research. ❖

VA-HUD Subcommittee Marks Up Spending Bill

On July 10, the House Appropriations Committee, Subcommittee on Veterans Affairs and Housing and Urban Development (VA-HUD) approved an FY 2002 spending bill that provided the National Science Foundation with a substantial increase over the President's original budget request.

The FY 2002 spending bill increased NSF funding by 9% to $4.8 billion dollars. The President's budget request had originally proposed only a 1% increase for NSF. The bulk of this money—$3.64 billion—would go to research, with $885 million to be used for education and $135 million to be used for equipment. While this 9% increase is much needed and appreciated, it falls short of the $5.1 billion (15%) increase that FASEB had advocated for in its FY 2002 consensus conference.

Although there was good news for the NSF, VA Medical Research received only a small increase. VA Medical and Prosthetics Research would be funded at $360 million or a 2.9% increase over FY 2001. This funding increase falls $35 million short of FASEB's recommendation of $395 million for FY 2002. The VA-HUD subcommittee also created a new VA appropriation line item for a "Facility Rehabilitation Fund." Of the $300 million allocated for this line item, $30 million must be spent on research facilities.

The subcommittee also recommended $685.9 million for the Office of Biological and Physical Research, which is an increase of $325.0 million over the President's budget request. This recommendation includes an increase of $318.6 million for space station research consisting of a transfer of $283.6 million. The committee instructed NASA to move all funding for space station research to the Office of Biological and Physical Research to help ensure that it be used only for research purposes. The FASEB consensus conference urged NASA to enhance the quality, depth and breadth of its Biology Research Enterprise through the new Office of Biological and Physical Research. It is not clear what the actual biological research budget will be. ❖

Congressman Nethercutt Introduces Antiterrorism Bill

A recent wave of attacks on Washington state research facilities has prompted Congressman George Nethercutt (R-WA) to introduce the Agroterrorism Prevention Act of 2001, as a way to deter future acts of violence. Speaking to reporters after introducing the legislation on June 5th, Nethercutt said, "these environmental terror groups are getting more aggressive-much more aggressive-and I think we need a strong response…My greatest fear is that someone is going to get killed."

Specifically, the Agroterrorism Prevention Act (APA) expands the Animal Enterprise Protection Act, by making terrorist actions against agricultural research facilities a federal crime. The new legislation provides deterrence by increasing the minimum mandatory sentence for fire bombings and providing prosecutors the discretion to seek the death penalty if such a crime results in someone's death.

A major problem facing law enforcement officials is the difficulty of tracking the perpetrators. The two lead animal and environmental terrorist factions, the Animal Liberation Front and the Environmental Liberation Front, work in small factions without a centralized structure. To aid law enforcement officials Congressman Nethercutt's legislation would establish a National Agroterrorism Incident Clearinghouse. This clearinghouse will help authorities track and monitor violent animal and eco-terrorist groups by collecting and maintaining information on specific incidents; collating and indexing this information for purposes of cross referencing, and providing this information to investigators at a crime scene.

For universities, a major target of terrorists, the legislation provides help. There would be award grants on a competitive basis to colleges and universities for technical assistance, threat and risk assessments and other activities designed to improve security. Some of these activities include, developing a comprehensive security report for universities, colleges and non-profit organizations which examines the threat posed by animal and plant enterprise terrorism on research activities, education on prevention, facility hardening, and coordination with law enforcement.

The APA aims at preventing and punishing future acts of harm rendered by animal and environmental rights groups but it is not the only piece of legislation in the 107th Congress dealing with this issue. On May 15, 2001, Congressman Felix Grucci (R-NY) introduced the Hands Off Our Kids Act of 2001. Congressman Grucci's bill aims to prevent animal and environmental groups from recruiting young adults to participate in violent and illegal activities. The legislation would allow the Attorney General to establish and implement a policy within the Department of Justice to identify organizations that recruit adolescents to participate in violent and illegal activities related to the environment, animal rights or any other matter the Attorney General considers being appropriate. It also would direct the Attorney General to develop a national program within the Office of Juvenile Justice and Delinquency Prevention (OJJDP), which identifies organizations that recruit juveniles to participate in violent and illegal activities. This measure would also authorize the Administrator of OJJDP to award grants to States, and State and Local Educational Agencies, to develop, establish, or conduct programs designed to combat and educate juveniles about these criminal organizations. ❖

Stem Cell Debate Heats Up

With a decision by the Bush Administration pending, federal funding of human embryonic stem cell research is taking center stage on the Washington political theater. President George W. Bush has said that a decision could come by mid to late summer, although there is no indication that a resolution is near.

On June 27, the NIH released a private report to Secretary of Health and Human Services Tommy Thompson based on a literature survey of over 1,200 scientific publications. While the report made no direct determination about the relative benefits of adult stem cells versus embryonic stem cells, it did refer to findings suggesting that adult stem cells may be more limited than cells of embryonic origin. The report said that for human stem cell research to advance to the stage of clinical investigation, a "virtual safety net composed of core set of safeguards is required. . . Whether embryonic stem cells are of embryonic, fetal or adult origin, donor sources are must be carefully screened." Additional protections advocated in the draft include "proof of concept, toxicity testing and evaluation of proliferative potential in animal models." In particular, the report suggested human stem cells be transplanted into animal models of human disease and that animal transplantation models be used to help address the question of whether embryonic human stem cells are "more robust and durable" than adult stem cells.

The controversy here revolves around the use of stem cells derived from human embryos since the embryos themselves must be destroyed in the process. There is a federal ban on embryo research, but the Clinton administration sought to work around it.

Although federal funds may not be used to derive stem cells, the Clinton administration had put into place a policy that would allow federal researchers to conduct research with stem cell lines derived by others from "spare" embryos that remain at the end of fertility treatments. The first round of such grants were reviewed this past spring, but there was some apprehension that the Bush administration would refuse to permit the research to go forward.

Many Democrats and moderate Republicans favor embryonic stem cell research, but a number of unlikely advocates have also come forth, including some politicians who have consistently opposed issues widely seen as relating to abortion. Key among this group of stem cell research supporters has been Senator Orin Hatch (R-UT), one of the Senate's most pro-life members. "Stem cell research facilitates life," according to a Hatch statement. "Abortion destroys life; this is about saving lives." Other anti-abortion Republicans who have added their support for federal funding of embryonic stem cell research include Sens. Strom Thurmond (R-SC), Gordon Smith (R-OR), John McCain (R-AZ), and Representative Randy "Duke" Cunningham (R-CA). Nancy Reagan, wife of former Republican President Ronald Reagan, who now suffers from Alzheimer's, sent a letter urging President Bush to allow federal funding of this research to proceed.

While there is a core set of Republicans fighting for this research, there is an equally adamant group who oppose it. House Majority Leader Richard Armey (R-TX), Majority Whip Tom Delay (R-TX), and Republican Conference Chairman J.C. Watts (R-OK) said in a statement, "The federal government cannot morally look the other way with respect to the destruction of human embryos, then accept and pay for extracted stem cells for the purpose of medical research."

Reports from the White House say that President Bush is grappling with this issue both politically and personally. According to aides, Bush has immersed himself in the moral and ethical issues at stake as well as the science. *The Washington Post* reports that he is "clearly searching for some kind of compromise that not only takes into account the strong political crosscurrents at play, but also fits his own values." It now appears unlikely that a decision will be made before the end of July as advisers now say they do not expect Bush to make up his mind until his July 23 visit with Pope John Paul II.

Positions Available

Chairperson: Michigan State University invites nominations/applications for the position of Chairperson, Department of Pharmacology and Toxicology. The position offers the exciting opportunity of hiring new faculty and directing one of this university's essential basic science departments. Extensive educational and research interactions are possible given the unique affiliation of the Department with the Colleges of Human, Osteopathic, and Veterinary Medicine, and the research funding opportunities provided by the Michigan Life Science Corridor Research Fund. Candidates must have a PhD or other advanced degree with an outstanding record of research in pharmacology and/or toxicology and must be a nationally recognized leader in their field. It is anticipated that the successful candidate will maintain an active, extramurally funded research program. The Department has major research emphases in the areas of cardiovascular pharmacology, neuropharmacology, inflammation/immune modulation, and toxicology; preference will be given to candidates demonstrating excellence in one of these areas. A strong interest in professional and graduate education and demonstrated leadership and administrative skills is essential. Applications should include a statement of interest in the position, a curriculum vitae, and names of three potential references (not to be contacted until approval is received from the applicant). Electronic applications are encouraged but paper materials also will be accepted. Applications should be sent to: David I. Kaufman, DO, Chair of Search Committee c/o Kimberly Betts, Office of the Dean, A309 East Fee Hall, Michigan State University, East Lansing, MI 48824 bettski@msu.edu. The deadline for receipt of these materials is **October 5, 2001**. Women and minorities are encouraged to apply. People with disabilities have the right to request and receive reasonable accommodation. [EOE/AA]

Positions Available

Program Officer for US National Committees in the Biological Sciences: The National Academy of Sciences (NAS)/National Research Council (NRC) is the official adhering member to the International Council for Science, an international, nongovernmental scientific organization made up of national members and 25 disciplinary unions. The NAS has formed a US National Committee (USNC) to interact with and represent US scientific interests in 25 of these unions. There are currently five such committees in the biological sciences. The incumbent manages these five committees (plus one in social sciences), along with a team of four other professionals who are responsible for other disciplinary groupings of USNCs. The program officer for the USNCs in Biology Sciences will report to the Director of the Board on International Scientific Organizations (BISO). The program officer will work with five USNCs in the biological sciences. These are the USNCs for the International Union for Biological Sciences, the International Union for Microbiological Sciences, the International Union for Physiological Sciences, the International Union for Biophysics and Molecular Biology, and the International Union for Pure and Applied Biophysics. In addition, the program officer will be responsible for one committee in the social sciences, most likely the International Union for the History and Philosophy of Sciences. Depending on the interests and expertise of the selected candidate, there may be some reassignment of committee responsibilities. He or she will have the following responsibilities: 1) guarantee USNC adherence to all NRC and ICSU rules and regulations; 2) prepare and staff the meetings of the USNCs; 3) provide liaison and regular communication to USNC members and to relevant unions; 4) draft annual reports to the National Science Foundation; 5) provide liaison and regular communication to NSF staff; 6) help write proposals for new and ongoing programs; 7) in conjunction with the appropriate board or commission, identify and nominate committee members; 8) identify and nominate the US delegations to Union meetings; 9) prepare appointment packages for approval by the NRC chairman; 10) prepare and issue letters on behalf of the NAS that invite Unions to hold their congresses in the US; 11) perform other assigned duties. The office consists of the Director, an Assistant Director, who is responsible for financial planning and for helping the Director with the overall program direction; one Senior Program Officer in charge of the USNCs for math and physical sciences; one program officer responsible for the USNCs in earth and social sciences; and one senior program officer responsible for international data and information issues. The office has four senior program assistants. BISO sits with the Policy and Global Affairs Division and is responsible for evaluating the directions of international science on behalf of the NAS and for managing the ICSU program at the NAS. Minimum qualifications (including years or experience and education) are BS or MS in any area of the life sciences, including biology, microbiology, physiology, biophysics, or environmental sciences; understanding of issues related to genomics; a broad interest in international collaboration, and four to five years work experience. Required specialized skills include that the candidate must have excellent communication skills and the ability to handle multiple committees at one time and must be able to understand broad areas of science and be well-read on current issues facing scientists in the given fields. The ability to plan and manage meetings, communicate with sponsors and committee members is critical. The candidate must also be able to approach other staff officers, particularly those on the disciplinary commissions, for advice and direction. This position requires both domestic and international travel. USNCs often meet on weekends. This position is a Grade K, with a starting salary of $50,000 to $55,000. The starting date is June 1, 2001. Please send curriculum vitae to: Wendy D. White, Director, Board on International Scientific Organizations, The National Academies—Advisers to the Nation on Science, Engineering, and Medicine, 2101 Constitution Avenue, NW, Washington, DC 20418. Tel: 202-334-2807; fax: 202-334-2231; email: wwhite@nas.edu or biso@nas.edu; Internet: http://national-academies.org.

Chair in Physiology: Ross University School of Medicine (RUSM) is seeking nominations and applications for Chair in Physiology. Applications are invited from high-energy, results-oriented individuals. Candidates must have a PhD, MD, or MD/PhD degree in the appropriate field and significant teaching experience in a US medical school. The primary focus of the Basic Science Departments at RUSM is in teaching and in curriculum development. The successful candidate must be prepared to assume a leadership role and the responsibility for developing a strong teaching Department in Physiology and will be empowered to recruit, train, and retain a world class faculty. The primary focus of the Basic Science Departments at RUSM is teaching and curriculum development. The mission of Ross University School of Medicine is to challenge and empower students to achieve their full professional and personal potential as physicians. Our campus is located in the country of Dominica, a Caribbean island, one of the most natural and unspoiled environments in this part of the world. Nominations and applications should be sent to: David P. Willis, Director of Faculty Recruitment, Ross University School of Medicine, 460 West 34th St., New York, NY 10011. Tel: 212-279-5500, ext. 648; email: dwillis@rossmed.edu; Internet: http://www.rossmed.edu.

Positions Available

Assistant Research Scientist: The Department of Internal Medicine, Cardiovascular Diseases Division is seeking an Assistant Research Scientist to perform basic research to advance knowledge of cellular and molecular mechanisms involved in the function of baroreceptor and sympathetic neurons. The work will require expertise in theoretical and methodological aspects of integrated cardiovascular physiology, cellular electrophysiology, and calcium imaging microscopy. This position requires that a person in this classification has the academic knowledge of a discipline that is generally associated with a Doctoral degree or an equivalent professional degree, i.e., MD, DDS, or DVM. In addition, the person will have demonstrated the ability to plan and execute a research study through some progressively responsible independent research work. This position desires a PhD degree in physiology or related discipline and research experience in the areas of cardiovascular physiology and cellular electrophysiology. Please send resume and cover letter indicating #44550 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]

Professor of Physiology: Ross University School of Medicine (RUSM) is seeking nominations and applications for a full-time teaching position for a Professor of Physiology. Candidates must have a doctoral degree in the field (PhD, MD). Significant teaching experience in a US medical school, a strong record of excellence and commitment to teaching, and an interest in innovative approaches to teaching are required. The primary focus of the Basic Science Departments at RUSM is teaching and curriculum development. The successful candidate must be receptive to identifying and implementing innovations in medical education that challenge and empower students to achieve their full professional and personal potential as physicians. RUSMs Basic Science campus is located in the country of Dominica, a Caribbean island, one of the most natural and unspoiled environments in this part of the world. The campus is equipped with state-of-the-art audiovisual and computer enhanced teaching tools. Compensation is commensurate with US medical schools. To apply, send curriculum vitae to: David P. Willis, Director of Faculty Recruitment, Ross University School of Medicine, 460 West 34th St., New York, NY 10001. Tel.: 212-279-5500, ext. 648; email: dwillis@rossmed.edu; Internet: http://www.rossmed.edu.

Research Associate: A Research Associate is needed to work as part of a laboratory group studying in vivo rodent metabolism and physiology focusing on brain and cardiac function. Responsibilities will include preparation of in vivo models and in vitro assessments of extracted tissues. The Research Associate will work as part of a team using magnetic resonance imaging, physiological evaluation, and biochemical assays to perform experiments using established models and to develop new experimental protocols to meet the needs of various projects. Requirements: BS/MS or higher in biological sciences or related field and 2+ years experience with hands-on experience with in vivo systems with possession of basic surgical skills, and biochemical/analytic assays. Special consideration will be given to candidates with experience in rodent intubation, ventilation, and familiarity with physiology software/hardware systems. The individual should be self-motivated with excellent organizational talents. Please send curriculum vitae and letter to: Linda Jelicks PhD, Department of Physiology and Biophysics, Albert Einstein College of Medicine, 1300 Morris Park Avenue, Bronx, New York, 10461. Email: jelicks@aecom.yu.edu; fax: 718-430-8819; tel: 718-430-2722. [EOE]

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.

Positions Available

Postdoctoral Position: Dimera LLC, a woman-owned biotech company offering exciting discoveries, plus drugs in development and testing, has open postdoctoral positions. Primate coronary artery drug development is the theme. Training includes digital live cell microscopy, with calcium and protein kinase C dynamic quantification and Doppler-enhanced cardiac catheterization. Salaries are above NIH guidelines, enhanced by a success bonus system to acknowledge outstanding contributions. Our small company rewards hard-working scientists who have the determination to achieve excellence. If you are motivated by progress on life-saving new drugs, excellent training, opportunity, satisfaction of accomplishment, and the enviable location, Dimera is an attractive option. Annual stipends range from $30,000 to $44,412, depending on previous experience. Please address inquires and resumes to: Dimera LLC, Human Resources Manager, 2525 NW Lovejoy, #311, Portland, OR 97210. Fax: 503-295-5757; email: dam@dimera.net.

Postdoctoral Positions: Applications are requested for two postdoctoral positions in an unique NIH-funded multidisciplinary program involving hyperbaric oxygen therapy. Postdoctoral training is offered in laboratories using molecular, genetic, cellular, and physiological approaches to study the effects of hyperbaric oxygen on angiogenesis, tumor cell growth, cell-to-cell adhesion, and free radical production/pathogenesis. An opportunity for investigating the clinical effects of hyperbaric oxygen on angiogenesis and quantitative analysis of tissue oxygenation is also available. Individuals with clinical experience who are interested in obtaining research training will receive special consideration. Laboratories available are: 1) Tumor Biology and Angiogenesis: Effects of hyperbaric oxygen on angiogenesis and hypoxia in post-radiation normal tissue and tumors; 2) Clinical Studies With Laryngectomy Patients: Clinical outcomes modeling for laryngectomy surgery patients and efficacy of hyperbaric oxygen therapy; 3) Cell Biology and Lung Injury: Effect of normo-and hyperbaric hyperoxia on the fate of tumor cells and leukocytes in the pulmonary circulation; 4) Oxidant Injury: oxygen-dependent elevation of nitric oxide production in vivo. Appointment as a postdoctoral fellow/researcher requires an advanced degree, PhD, MD, or equivalent. More information is available on the Internet at http://www.med.upenn.edu/ifem. Please send curriculum vitae and names of three references to: Wendy Kelly, Institute for Environmental Medicine, University of Pennsylvania School of Medicine, 3620 Hamilton Walk, 1 John Morgan Building, Philadelphia, PA 19104.

Instructor/Assistant Professor: The Pediatric Heart Lung Center and the Department of Pediatrics at the University of Colorado Health Sciences Center are seeking to hire one or two PhD scientists with strong interests and experience in studies of vascular biology, lung development, or related fields. The Pediatric Heart Lung Center is a multidisciplinary group of investigators whose primary research focus has been in the developing lung circulation, nitric oxide, endothelial cell biology, and related areas. Candidates should have expertise in such areas as cell biology, molecular and biochemical techniques, cell culture systems, and others. Candidates must be US citizens. Pay and fringe benefits will be commensurate with the level of experience for either Instructor or Assistant Professor. For inquires, contact: Steven H. Abman, MD, Professor, Department of Pediatrics, The Children's Hospital, B395, 1056 E. Nineteenth Avenue, Denver, CO 80218-1088. Tel: 303-864-5821; fax: 303-837-2924. [EOE/AA]

Postdoctoral Position: The Department of Physiology, The University of Tennessee Health Science Center, has a position immediately available to study calcium sparks and ion channels in arterial smooth muscle cells; regulation and physiological function (for review see *Am. J. Physiol.-Cell Physiol*. 278: C235-C256, 2000). A doctorate in physiology or a related field is required. Experience with patch clamp, confocal microscopy, or calcium fluorescence is beneficial. Please send a curriculum vitae and letters of reference to: Jonathan H. Jaggar PhD or Charles W. Leffler, PhD, Department of Physiology, University of Tennessee Health Science Center, 894 Union Avenue, Memphis, TN 38163, USA. The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA employer.

Postdoctoral Position. A postdoctoral position is immediately available to study the regulation and expression of voltage-gated potassium channels in native arterial smooth muscle cells as well as heterologously expressed in mammalian cells and *Xenopus* oocytes. Current studies focus on the mechanisms by which these channels are modulated by calcium (*Am. J. Physiol*. 277: C51, 1999) and utilize a combination of electrophysiology, molecular biology, protein analysis, and cell culture methods. Applicants with experience in patch-clamp techniques will be given preference, but experience in any of these areas will be considered. Interested applicants should send their curriculum vitae to Robert H. Cox, PhD, Senior Investigator, Lankenau Institute for Medical Research, Jefferson Health System, 100 Lancaster Avenue, Wynnewood, PA 19096. Email: coxr@mlhs.org. [EOE]

Positions Available

Postdoctoral Fellow in Biology (#F01-180): San Diego State University (SDSU) Foundation has a position to be filled for a Postdoctoral Fellow with a PhD in biochemistry, physiology, biology, engineering, biophysics, or molecular biology. The position involves carrying out experiments in a laboratory that is using an integrative approach to study the function of the molecular motor myosin in transgenic fruit flies (*Drosophila melanogaster*), using isolated muscle preparations and via biochemical and biophysical techniques. The work involves collaborations with laboratories in Burlington, Vermont and Seattle, Washington, and the Postdoctoral Fellow may travel to one or more of these sites for extended periods. The Fellow will work closely with a technician and two to four graduate students in San Diego and with the collaborators in VT or WA. The Fellow will be under the direct daily supervision of the Principal Investigator or the Off-site Collaborator. Our laboratory currently possesses strong capabilities in molecular biology, genetics, ATPase and in vitro motility assays, and electron microscopy. Through collaborations we are involved in optical trapping assays, measurements of muscle fiber function, and transient kinetic studies. We are offering the successful applicant the possibility of learning new skills and providing expertise to facilitate the collaborations described above. A PhD in biochemistry, physiology, biophysics, engineering, biology or molecular biology is required. Experience in biochemical kinetic measurements and/or muscle protein biochemistry and/or single molecule optical trapping assays and/or muscle mechanical measurements is also required. A working knowledge of genetics and molecular biology would be helpful; two to three years of research experience is also desirable.

The selection process may consist of completing an SDSU Foundation application, an oral interview, and possibly a performance exercise to evaluate the applicant's skills, training, experience, and personal qualifications for this position. The salary range for the position is $1,823-3,996 per month. Please submit an SDSU Foundation Employment Application, specifying the Job Announcement number #F01-180. A letter of intent describing qualifications, areas of interest, date of availability and 3 references commenting on applicant's scientific abilities is required. Applications may be picked up at and should be sent to SDSU Foundation, Human Resources Services, 5250 Campanile Dr., Gateway Building, 4th Floor, San Diego, CA 92182-1945. Fax: 619-594-3763. Application materials will be sent upon receipt of a self-addressed stamped envelope. This position will remain open until filled. [EOE]

Postdoctoral Associate (C 961): The Department of Kinesiology has a full-time postdoctoral Associate position available. Salary: $2,000-2,500/month full-time. Appointment is through 7/31/02 and is renewable. Duties of the position include working under general supervision to conduct research in skeletal muscle physiology, biochemistry, and molecular biology; coordinate and supervise research projects; develop and implement analytical procedures in the laboratory, in vivo and in vitro analysis of skeletal muscle metabolism; and assist in training graduate/undergraduate research assistants. The opportunity exists to teach an undergraduate course in exercise physiology if desired. Other duties will be performed as assigned. Qualifications for this position include a PhD in physiology/exercise physiology, biochemistry/molecular biology, or a related basic science degree. Research knowledge and experience in performing biochemical and molecular laboratory biology procedures are required. A strong research interest in skeletal muscle physiology, carbohydrate/lipid metabolism, biochemistry, and gene expression is necessary. The ability and specialized skills to establish and maintain effective working relationships with others is also required. The position is open until filled; review of applications begins June 19, 2001. Submit our application to California State University, Northridge, Office of Human Resource Services, 18111 Nordhoff Street, Northridge, CA 91330-8229. Fax: 818-677-7863; for details, see http://www-hrs.csun.edu/employment. [EOE]

Research Scientist: A skilled and experienced postdoctoral scientist is needed for a Research Scientist position in the Department of Molecular & Cellular Physiology, University of Cincinnati College of Medicine, in a laboratory studying ion channels. Expertise in molecular biological, cell biological, electrophysiological, and biochemical approaches is needed. These include cloning ion channels, plating and screening libraries, colony purification, sequencing, subcloning, Northern and Southern blot analysis, restriction mapping, mRNA preparation, cRNA preparation, PCR, site-directed mutagenesis, oocyte expression of cloned channels, stable transfection of HEK293 and CHO cells with various wild-type and mutant ion channels, in situ hybridization, in situ RT-PCR, Western blots, membrane preparation and purification, and fluorescent immunomicroscopy using a confocal microscope. Expertise in electrophysiological approaches using planar lipid bilayers, patch clamp, and short-circuit current techniques is essential for assessing function of the channels. Four to five years of postdoctoral experience is required. The ability to analyze data and prepare manuscripts for publication is essential. Email replies to John.Cuppoletti@uc.edu. Closing date 7/01/01.

Positions Available

Tenure-Track Position In Integrated Physiology: The Department of Physiology and Neuroscience at the Medical University of South Carolina invites applications for a 12-month tenure track appointment. Rank will be commensurate with experience. Applicants must have a PhD, MD, or both with significant activity in biomedical research and in the teaching of systems-level physiology to professional and graduate students. Preference will be given to applicants who can demonstrate a record of excellence in teaching, as well as in curriculum leadership and innovation. An individual holding this position will be expected to spend approximately one-third of their effort in laboratory research compatible with departmental interests, including cellular and systems neuroscience and cardiovascular physiology. Review of applications will begin October 1, 2001 and continue until the position is filled. Applicants should submit a curriculum vitae, a statement of teaching philosophy with copies of teaching evaluations and selected course materials, a statement of research interests and goals and the names of three letters of reference to: Christopher Fredericks, PhD, Department of Physiology/Neuroscience, Medical University of South Carolina, PO Box 250510, Charleston, SC 29425. Email: frederic@musc.edu; Internet: http://www2.musc.edu/pgy/pgy.html. [EOE/AA]

People & Places

Mohamed Hassan Ahmed has moved to the Department of Physiology and Pharmacology, Birmingham University Medical School, Birmingham, UK. Previously, Ahmed was with the Department of Physiology, Pharmacology, and Toxicology, Manchester University School of Biological Sciences, Manchester, UK.

Matthew D. Beekley has moved to the Department of Zentrum Physiologie, at the Medizinische Hochschule Hannover, Germany. Prior to his recent move, Beekley was affiliated with the Department of Kinesiology, Indiana University, Bloomingham, IN.

Accepting the position of Chief of the Division of Gastroenterology, Hepatology and Nutrition, University of Florida, Gainesville, FL, **Richard Vincent Benya** has moved from the Department of Medicine, University of Illinois, Chicago, IL.

Robert W. Brock has joined the Lawson Health Research Institute, Vascular Biology Program, London, Ontario, Canada. Previously, Brock was with the Department of Surgery, University of Western Ontario, London, Ontario, Canada.

Charles Francis Burant was formerly with the Department of Cell Biology, Parke-Davis Pharmaceuticals, Ann Arbor, MI. Recently, Burant became Director, Department of Medicine, University of Michigan, Ann Arbor, MI.

Accepting a position with the Department of Pulmonary Medicine, Johns Hopkins University, Baltimore, MD, **Matthew J. Campen** has moved from the Department of Environmental Science Engineering, University of North Carolina, Chapel Hill, NC.

Joining the Department of Pulmonary and Pediatrics, Arkansas Children's Hospital, Little Rock, AR, **John L. Carroll** has moved from the Department of Pediatrics, Johns Hopkins Children's Center, Baltimore, MD.

Recently, **Ravi S. Chari** moved to the Department of Surgery, Vanderbilt University Medical Center, Nashville, TN. Prior to his new appointment, Chari was with the Department of Surgery, University of Massachusetts Medical School, Worcester, MA.

Sidney Cohen, Professor and Chairman, has joined the Department of Medicine, Temple University School of Medicine, Philadelphia, PA. Prior to his new appointment, Cohen was with the Division of Gastroenterology, Jefferson Medical College, Philadelphia, PA.

Christopher Anthony Del Negro has accepted a position with the Department of Neurobiology, University of California, Los Angeles, CA. DelNegro was formerly with the Cell and System Section, NIH/NINDS, Bethesda, MD.

Accepting a position with the Department of Physiology, Medical College of Wisconsin, Milwaukee, WI, **Melinda R. Dwinell** has moved from the Department of Medicine, University of California, San Diego, La Jolla, CA.

William Lee Eschenbacher is currently Acting Branch Chief, National Institute for Occupational Safety and Health, Division of Surveillance Hazardous Evaluation and Field Studies, Cincinnati, OH. Prior to his current position, Eschenbacher was with the Division of Respiratory Disease Studies, Morgantown, WV.

Affiliating with the Department of Physiology, Loyola University of Chicago, Maywood, IL, **Jinping Fan** has moved from the Department of Medicine, Cook County Hospital, Chicago, IL.

Michael F. Flessner has accepted a position with the Department of Medicine, Division of Nephrology, University of Mississippi Medical Center, Jackson, MS. Flessner had previously been with the Deparment of Medicine and Nephrology Unit, University of Rochester Medical Center, Rochester, NY.

Timothy J. Fort was formerly with the Department of Biological Sciences, University of Rhode Island, Kingston, RI.

Fort recently moved to the Instituto De Neurobiologia, University of Puerto Rico, San Juan, PR.

Formerly with Parke Davis Pharmaceutical Research, Division of Warner-Lambert Company, Ann Arbor, MI, **Kim P. Gallagher** has recently joined Pfizer Global Research & Development, Ann Arbor, MI.

Recently, **Theodore Garland, Jr**., has joined the Department of Biology, University of California, Riverside, CA. Prior to his new position, Garland was with the Department of Zoology, University of Wisconsin, Madison, WI.

John Robert Gosche has accepted a position with the Department of Surgery, University of Mississippi Medical Center, Jackson, MS. Prior to his new appointment, Gosche was with the Department of Surgery and Pediatrics, Yale University School of Medicine, New Haven, CT.

Danielle Greenberg has affiliated with the Pepsi Cola Company as Manager Nutrition and Scientific Affairs, Department of Scientific Regulatory Affairs, Valhalla, NY. Prior to her new position, Greenberg was with AMBI Inc., Department of Product Development, Purchase, NY.

Raymond Donald Hagan has moved from the Department of Human Performance, Naval Health Research Center, San Diego, CA to the Department of Life Sciences, NASA/Johnson Space Center, Houston, Texas.

Accepting a position with the Military & Emergency Medicine Department, Uniformed Services University, Bethesda, MD, **Thomas C. Herzig** has moved from the Armed Forces Radiobiology Research Institute, Bethesda, MD.

Richard Aaron Hodin has joined the Department of Surgery, Massachusetts General Hospital, Boston, MA. Hodin has moved from the Department of Surgery, Beth Israel Deaconess Medical Center, Boston, MA.

Accepting a position with the Department of Veterinary Medicine and Epidemiology, University of California, Davis School of Veterinary Medicine, Davis, CA, **Lynelle Rae Johnson** has moved from the Department of Veterinary Biomedical Science, University of Missouri, Columbia, MO.

Michael G. Jonz has moved to the Department of Biology, McMaster University, Hamilton, Ontario, Canada. Previously, Jonz was with the Department of Biology, Brock University, St. Catharines, Ontario, Canada.

Moving from the, Department of Medical Engineering, Kawasaki Medical School, Okayama, Japan, **Fumihiko Kajiya** has joined the Department of Cardiovascular Physiology, Okayama University Graduate School of Medicine and Dentistry, Okayama, Japan.

Ali A. Khraibi has joined the Department of Physiology, Eastern Virginia Medical School Norfolk, VA. Prior to his new appointment, Khraibi was with the Department of OB/GYN, University of Illinois, Chicago, IL.

Wolfgang M. Kuebler was formerly associated with the Institute for Surgical Research, University of Munich, Munich, Germany. Recently, Kuebler joined the Institute of Physiology, Free University of Berlin, Berlin, Germany.

Accepting a position with the Department of Anesthesiology, Pennsylvania State University College of Medicine, Hershey, PA, **DePei Li** has moved from the Department of Anesthesiology, Wake Forest University School of Medicine, Winston-Salem, NC.

Affiliating with the Department of Physiology, University of Maryland School of Medicine, Baltimore, MD, **Djikolngar Maouyo** has moved from the Johns Hopkins University School of Medicine, Baltimore, MD.

Coral Lyn Murrant recently joined the Department of Biology and Nutritional Science, University of Guelph, Guelph, Ontario, Canada. Murrant was previously affiliated with the Department of Pharmacology and Physiology, University of Rochester, Rochester, NY.

Affiliating with the Department of Physiology, American University of the Caribbean School of Medicine, Miami, FL, **Polly Kristine Phillips** has moved from the Department of Biology, Health, and Wellness, Miami Dade Community College, Miami, FL.

Affiliating with the Institute for Human Gene Therapy, University of Pennsylvania, Wistar Institute, Philadelphia, PA, **William W. Reenstra** has moved from the Department of Pediatrics, Thomas Jefferson University, Alfred I Dupont Hospital for Children, Wilmington, DE.

Marlowe J. Schneidkraut has joined the NeoRx Corporation, Seattle, WA. Prior to his new position, Schneidkraut was with CTL Immunotherapies, Chatsworth, CA.

Accepting a position with the Department of Biological Science, Columbia University, New York, **Michael P. Sheetz** has moved from the Department of Cell Biology, Duke University Medical Center, Durham, NC.

Toshishige Shibamoto has affiliated with the Department of Physiology, Kanazawa Medical University, Uchinada, Japan. Shibamoto was previously with the Physiology Division, Shinshu University School of Medicine, Matsumoto, Japan.

Affiliating with the Illinois Bone and Joint Institute, Chicago, IL, **John L. Skosey,** former Director of Medical Affairs, has moved from the Department Medical Staff Office, MacNeal Hospital, Berwyn, IL.

Joining the Department of Medical Physiology and Cardiovascular Research Institute, University of Kansas Medical Center, Temple, TX, **Jena J. Steinle** has left the Department of Molecular and Integrative Physiology, University of Kansas Medical Center, Kansas City, KS.

Moving from the Department of Pathology, Yale University School of Medicine, New Haven, CT, **Stanislav L. Svetlov** has joined the Department of Pathology, Immunology, and Laboratory Medicine, University of Florida, Gainesville, FL.

Douglas H. Sweet has joined the Department of Medicine, University of California-San Diego, La Jolla, CA. Previously, Sweet was with the Laboratory of Pharmacology, and Chemistry, National Institute of Environmental Health Sciences, NIH, Research Triangle Park, NC.

Accepting a position with the Department of Thoracic Surgery, Iwate Medical University, Morioka, Japan, **Tatsuo Tanita** has moved from the Department of Thoracic Surgery, Tohoku University, Institute of Development, Aging and Cancer, Sendai, Japan.

Donald E. Watenpaugh has joined the Naval Submarine, Medical Research Lab, Groton, CT. Previously, Watenpaugh was with the Department of Integrative Physiology, University of Texas Health Science Center, Fort Worth, TX.

Accepting a position with the Department of Pharmacology & Biophysics, University of Calgary, Canada, **Donald Gordon Welsh** has moved from the Department of Pharmacology, University of Vermont Faculty of Medicine, Burlington, VT.

Affiliating with the Department of Discovery, BioCardia, South San Francisco, CA, **Robert Woodward** has moved from the Gladstone Institute of Cardiovascular Disease, San Francisco, CA.

Chung-Ho Yeum has affiliated with the Department of Internal Medicine, Division of Nephrology, Seonam University College of Medicine, Seoku Gwangju, Korea. Formerly, Yeum was with the Department of Internal Medicine, Chonnam National University Hospital, Kwangju, South Korea.

Robert P. Yezierski has accepted a position with the Department of Orthodontic Neurosurgery, University of Florida, Gainesville, FL. Previously, Yezierski had been with the Department of Neurosurgery, University of Miami School of Medicine, Miami, FL. ❖

Letters to Eugene Renkin

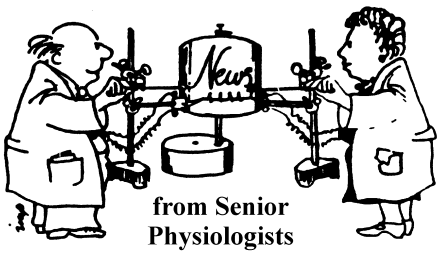
Peter B. Bennett writes: "Thank you for your letter as I approach my seventieth birthday. It comes as a real surprise to me, as I am not doing anything different to what I was doing over 20 years ago, and do not feel any different! I have not retired, as yet, and am continuing all my activities and travels to the full and with my usual vigor.

"I have been at Duke Medical Center since 1972 as a tenured professor after 20 years of physiological research into diving with the Royal Navy in England.

"I continued my research at the Hyperbaric Center at Duke and was able to continue in the USA my cellular, animal and human studies on the effects of pressure per se. This causes what I called the 'High Pressure Nervous Syndrome' with dizziness, nausea, vomiting, tremors, EEG changes and eventually convulsions due to a generalized hyperexcitability. I was able to determine this was the opposite of the anesthetic effects of nitrogen or inert gas narcosis. So by adding some five percent nitrogen to helium and oxygen, I was able to take human divers to record depths of 2250 feet in simulated dives in a pressure chamber and arrive fit and able to work.

"In recent years my interests changed to the shallower depths of scuba divers.

"In 1980, while Director of the Hyperbaric Center at Duke, I founded the Divers Alert NetWork (DAN) with two-year grants from NOAA and NIOSH to form an emergency hot line for divers contracting decompression sickness in the USA and to help generate research support for the Hyperbaric Center. By 1990, it had grown too big to remain at Duke so it was incorporated as a 50lC3 non-profit with the mission to provide medical information and advice to the diving public, emergency medical advice and assistance, and to promote diving safety and research. In 1990 DAN also became international in five continents.



"Today it has over 260,000 members and is growing at 20% a year. The stability of the association has enabled it to provide considerable funds toward study of decompression sickness, flying after diving, epidemiology of accidents, diabetics and diving, oxygen toxicity studies, etc. It has also developed very successful education programs such as continuing medical education for physicians, training in provision of 100% oxygen for accidents to diving and other aquatic environments, dangerous marine animals, etc. DAN now has its own 27,000 square foot building and a staff of nearly 90.

"As a result of the significant success of DAN and as Founder and President of the Divers Alert Network, I was selected as a finalist for the North/South Carolina 2001 Ernst & Young Entrepreneur of the Year Award from several hundred nominees. An award in each category will be made against two other finalists at a black tie banquet in Charlotte, NC on June 21, 2001. The winners from the ten categories will be included for the National Entrepreneur of the Year from the other 47 programs around the United States to be held in Palm Springs in the autumn. As an academic, I was somewhat surprised by the crossover to the business world—even if non-profit, but it has been a stimulating change.

"More applicable to my academic pursuits, I have been nominated Dr. Honoris Causa of the Universite de la Mediterranee by Laboratory of Physiopathologie et Action Therapeutique des Gaz Sous Pression in Marseille and selected by the scientific committee of the University. The official ceremony will be in the fall of 2001.

"Again, Professor Yuri Natochin, MD, DSc, Chairman Physiology Division, Russian Academy of Sciences, Dean Medical Faculty at St. Petersburg State University, Russia, during a visit to Duke University Medical Center, May 2001, presented me with a citation for my 70th birthday from Professor Osipov, President Russian Academy of Sciences, for nearly 50 years of distinguished research in diving physiology and medicine, together with the Pavlov Medal of the Russian Physiological Society, Russian Academy of Sciences. I was elected a Foreign Member in 1994.

"This recognition of persona1 achievement by one's peers is certainly very much appreciated. But perhaps the greatest pleasure is to still be involved with diving physiology in so many ways through the Duke Hyperbaric Center and the Divers Alert Network. When I do step down as President of the latter, I hope to continue to write, teach, do research, and be available as a consultant so long as I remain fit and healthy.

"The physiology and medicine of diving has been my passion in life and has enabled me to travel the world and make long lasting friendships with colleagues in many countries.

"It is a fascinating and unique field, not in the general run of physiology but, in fact, a very useful tool in helping us understand many physiological mechanisms. So I am not at all keen to give up my passion for the rocking chair or golf course! The intellectual rewards of challenging physiological questions requiring basic and applied research answers are the staff of life for me.

"So my advice to older colleagues is to do the same—follow your passion and it will keep you young!

"For the younger physiologist, I would advise to be careful not to spread oneself too thin, but to focus on a specific research field, choose the problem

and the hypothesis, and the stick to it, be persistent. A research career is built a block at a time and requires tenacity and endurance to deal with negative results, which feel like a stone wall, but may, in fact, direct you to startling research findings.

"In closing, again, in answer to Gene Renkin's request to let you know what I am doing, it would not be correct, I think, at this to me still remarkable age, not to give my appreciation to Duke Medical Center for all the opportunities it has provided me. I hope I can write again when I am 80 and to mentors like Merel Hannel and Dan Tosteson and so many others who molded the direction of my career."

Francis Craig writes: "I always enjoy the letters from Senior Physiologists and admire the ones who keep up with the field. At Edgewood they reorganized the laboratories every few years and after the last one I was unable to adjust to the new priorities and retired in 1978 to enjoy the generosity of the tax payers in my Civil Service Annuity-much nicer than a pension, don't you think? Having been brought up in a strict school of Publish or Perish, I was casting about for something to do when I ran across a book called Ancestral Roots of Sixty Colonists and recognized a few of my ancestors. This opened a new field of research and thanks to the kindness of the editors, I was able to add a few more publications to my bibliography."

Ashley Thomson writes: "My official retirement from my last appointment, which was Medicine/Nephrology, was in 1989: Prof Emeritus, Medicine, Manitoba 1990. My path from surgery to physiology and medical research, to pharmacology and therapeutics and medicine/nephrology sounds more complicated than it really was. One way or another some 10 of the students who spent at least a year with me now hold academic positions in Canadian and US medical schools. After retirement, I did 'people to people' visits in Russia, China and South Africa and was a visiting professor briefly in Taiwan and San Antonio.

"Biggest challenge: Diabetes Mellitus with complicating hypertension and renal failure. A major problem in the aboriginal populations world wide now. Involves Caucasians and other ethnic groups. Is it just our high fat diet and inactivity with a little genetics thrown in?"

Letter to Karlman Wasserman

Felix Bronner writes: "I was touched and pleased to have received your letter, congratulating me on my forthcoming 80th birthday and inquiring about my life and activities. I have known about the senior physiologists, the activities of some of them, and had in fact meant to write about my activities. But there is an understandable reluctance to blow one's own horn, a reluctance that your letter has helped me to overcome.

"I retired in 1989, but as emeritus professor was given an office and have as a result been able to continue scholarly activities. I had no laboratory, but was able to continue a long-time collaboration with my friend and colleague, Danielle Pansu of Lyon, France, until she retired. We published papers together. In fact, what is probably my last experimental paper has appeared in the July issue of the *AJP-Cell Physiology*. Thanks to Dr. Pansu I was awarded an honorary doctorate at the Sorbonne in 1996.

"I have edited books, am in the process of editing two books this year, one entitled *Nutritional Aspects and Clinical Management of Chronic Disorders and Diseases*, to be published by CRC Press, the other, volume 1 of a series entitled *Topics in Bone Biology*, of which Dr. Mary C. Farach-Carson is co-editor, is *Bone Formation*. I attend professional meetings, have organized some symposia and generally have been fortunate to be able to continue some professional activity throughout the period of my retirement.

"Some 24 years ago I began to paint and have developed this into virtually a second career. I have exhibited, won some prizes, have even sold some paintings, and continue to do painting and collages in my new studio, built some three years ago as an addition to our house. If any friends or colleagues are interested in seeing my work, I'd gladly send them a brochure that features some of my paintings. I am even considering getting a web site.

"My wife and I are blessed with two children and four grandsons. Our daughter, who is an attorney, married to an attorney, lives in Los Angeles. Our son, education editor at The New York Times, is married to a clinical psychologist and lives in Pelham, NY. Each family has two boys.

"Both of my PhD students have gone into academics and some of my postdoctoral fellows have also remained in research. Undergraduate medical and dental students have in general become active professionals." ❖

Have You Visited the APS Web Site Lately?

Have you visited the APS web site lately? If not, you probably should! It changes almost daily with a variety of announcements, important award and deadline information, as well as physiology position listings. Have you been to the Members only section? Why not check it out at http://www.the-aps.org.

The Hot Brain. Survival, Temperature, and the Human Body

Carl V. Gisolfi and Francisco Mora
Cambridge, MA: MIT, 2000, 272 pp., illus., index, $45.00.
ISBN 0-262-07198-3

This interesting book argues that the brain and homeothermy evolved together in a continuum over geologic time in response to selective environmental, particularly thermal, pressures. Thus, according to this view, this development initially involved only behavioral thermoregulatory adjustments (ectothermy), then later was gradually augmented by autonomic, i.e., thermogenic (tachymetabolic), mechanisms, thereby eventually culminating, in birds and mammals, in endothermy. These events were accompanied by the organization of increasingly complex sensorymotor circuits and integrative processes in the brain such that, ultimately, the body's functions came to depend, for optimal performance, on a thermally stable, warm core, managed by a "hot" brain. To quote the authors (Chap. 10), "the brain is the body" and thermoregulation serves to keep it "hot." This concept is not entirely new, but it is presented in this book in a more coherent and thorough argument than heretofore.

Thus, this book is neither a textbook nor a review, but a thesis based on data from multiple sources, assembled to validate the authors' proposition. It is organized in a logically sequenced series of 10, essentially self-contained chapters, each addressing a particular aspect of the authors' argument. The first two chapters present the case from the perspective of the evolutionary origin of species, the phylogenic, ontogenic, and comparative aspects of thermoregulation. These chapters are the most speculative in the book because the supporting data are sparse. Yet, by the same token, they are also the most provocative and interesting, because the reader is often moved to ponder whether the "facts" presented would lead one to the same assertions as the authors' and whether there may exist other "facts" that would further support or, on the contrary, refute their viewpoints. Chapter 3 continues with the phylogenic development of thermoregulation but with the focus on the evolving brain. Better established data and well-documented comparative models are used to bolster the authors' case. The following six chapters describe broadly accepted findings to further support the authors' thesis. Examples of thermoregulatory mechanisms under various conditions are used; their substance is not controversial, but their coverage is necessarily brief. There are a few instances when a mental rejoinder is elicited about one particular interpretation or conclusion, but these are not consequential. There are also a very few, very minor errors of fact, but unimportant in the overall context of the book. Only one very familiar with the material might detect them, and in any case they do not detract from the authors' premise. Among the topics in these latter six chapters, various, still perplexing issues are discussed, e.g., why is the body temperature of mammals regulated at circa 37°C instead of at any other level, were the dinosaurs "warm-blooded," does the "hot" brain of humans protect itself against overheating, does sleep serve to "cool" the brain, why is a febrile rise in body temperature a defensive mechanism whereas a hyperthermic rise is deleterious. Newer, emerging research topics are also considered, e.g., the role of heat shock proteins in thermotolerance and acclimatization, molecular and cellular mechanisms of thermal adaptation, the possible involvement of cytokines in the pathogenesis of heat stroke, the physiological problems associated with exercise in the heat, and other subjects. The last chapter recapitulates the principal arguments of the authors' thesis, integrates them with other hypotheses on the evolutionary continuum of brain-thermoregulation, and finally summarizes the authors' own integrative perspective.

The book is fairly easy to read, but some knowledge of the vocabulary and the basic concepts of zoology and physiology is helpful. It is, however, not directed to specialists but rather to paraphrase the authors' statements in their Preface, to both scientists and nonscientists, including students, interested in learning how animals evolved, adapting over the eons to survive the stressful conditions of their physical environment. The text is abundantly illustrated with figures and tables from the original literature modified only to make their format relatively uniform throughout the book. Thus, they are like figures in a paper, helpful and necessary, but a bit dull—i.e., the art is not very catchy. The bibliography is ample without being exhaustive, and there is a good index to both terms and authors cited in the text. The perspective of the book is mechanistic, not anecdotal, and well grounded in data. It makes for a very nice, leisure-time read. But portions of it can readily be extracted as bases for graduate courses or for other didactic purposes. ❖

Clark M. Blatteis
University of Tennessee

Animal Experimentation: A Guide to the Issues

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

On page 1, Monamy states that "At some stage, all [life science] students will have to make a personal decision about the extent to which they are prepared to use research animals," and then argues that "...decisions as serious as this ought to be taken only after informed discussion about major issues in animal experimentation." After reading his book, I must agree and furthermore believe that this is a "must-read" for any student or scientist involved in animal experimentation at any level.

I am a cardiovascular physiologist who has always worked with either rat or dog experimental models, both acute and chronic, and have a heightened awareness of, and perhaps sensitivity to, the forces aligned against animal research. Thus, I must admit that I began this review with red pen in hand, suspecting it to be animal rights propaganda couched as a balanced discussion of animal experimentation. In fact, my first note in the margin was that the introductory quotes by Henry Beston and Miriam Rothschild "set a tone for anti-animal use." However, I soon developed an objective understanding of Monamy's presentation and agreement with his goals. On the other hand, I also found myself going back and forth between these sentiments for some time, believing at the beginning of each seemingly anti-research passage that I had caught him revealing his true intentions....only to be dissuaded by my continued reading. My advice to readers of this book, therefore, is to keep reading. Although some parts of the book may lean more towards the anti-vivisectionist viewpoint, the overall presentation stays true to his goal, and I am left believing that each animal researcher should be more attuned to the anti-vivisectionist arguments than is perhaps comfortable. The aforementioned quotes take on new meaning when considered from the perspective intended by Monamy.

Chapter 1 of his guide describes the dilemma at hand, illustrating the continuum between viewpoints that A) no animal experimentation will ever be considered essential, and B) that scientific research should proceed unhindered by what may be interpreted as ignorant or sentimental. In describing the different viewpoints, Monamy also states that the opposition to animal research no longer follows the form "all experiments must cease," but, rather, focuses on issues such as what constitutes an essential experiment and what conduct is appropriate when conducting animal studies. I disagree with this point as a generalization, because many groups clearly want to eliminate all animal experimentation. However, he also discusses why, wherever one falls along the continuum, one cannot ignore the medical advances that have resulted from animal studies, and he also indicates it is unfair and incorrect to state that western scientists engaged in animal research are not aware of their responsibilities nor respectful of their experimental subjects. The tone is set that the book is intended to provide the reader with information that spans the continuum so that he or she will be "in a better position to consider their responses to the complexities inherent in any discussion of animal experimentation.

The next two chapters provide an informative history of vivisection, as he describes how the opposition to animal research developed and became organized. I think most of this section provides the reader with a good sense for how both proponents and opponents wrestled with the issue of vivisection in the early days of animal use in science. However, near the end of Chapter 3, in describing several recent incidents such as the Silver Spring monkeys, the presentation turns very one-sided by noting that findings in these instances revealed evidence of mistreatment and lack of regard for the animals' welfare. This is portrayed as somewhat of a springboard for the recent rise in animal welfare awareness and interest by moral philosophers such as Peter Singer, but it is unfair to equate what certain individuals *perceive* as being mistreatment based on selective media coverage with what the true story may be when all details of an incident are analyzed objectively. Nonetheless, this section is educational and certainly gives the reader an appreciation for why the anti-vivisectionist movement began.

Chapter 4 is the centerpiece of the book in my opinion. It is here that Monamy lays out the range of moral arguments that most would consider pro-animal rights or anti-vivisectionist. He provides counter-arguments as well, and my only criticism is that his presentation of the "debates" between the moral philosophers and their critics usually gives the last word to the former. However, Monamy truly appears to be working diligently in this chapter to weave these various philosophies into a workable solution, a common ethic which all parties can agree upon that condones justifiable animal research. He appears ultimately to take issue with inconsistencies inherent in the writings of Singer, and others such as Tom Regan, and become frustrated by arguments about where in the phylogenetic tree one makes the "cutoff" for what animals, or what life, deserves special consideration. I believe he then presents the position of Albert Schweitzer, "reverence for life," as a more workable ethic. He rebuts criticisms that this is too simplistic and illustrates how this ethic can be used to guide animal researchers and satisfy the wishes of society.

Reverence, which may be more accurately translated to respect, for life, does not make causing the death of an animal

Book Review

wrong unless the causing of pain or death *can be avoided*. Monamy states that "Anyone guided by 'reverence for life' will only cause death or suffering of any animal in cases of inescapable necessity. Chapters 5 and 6 go on to describe how animals are used in research, how animal use is regulated by western governments, and how alternatives to animal use should be pursued, but it is these closing pages in Chapter 4 that I believe is meant to give the reader a guiding ethic and an understanding of what their obligation is, to society and to their animal subjects. He indicates that animal investigators have to recognize their role as moral stewards, with animal experimentation viewed as an inescapable necessity which is justifiable as long as the scientist is in tune with their moral obligations. He quotes a 1991 work by Smith and Boyd, saying that "such a justification, however, should be considered very carefully indeed." In addition, a quote from an Australian Senate animal welfare committee states that "...human beings bear the burden of...respecting and protecting the interests and welfare of those creatures which are alive and do have minimal levels of sentience..."

Thus, it is easy to believe what Monamy said was suggested by David Porter: that "... all scientists adopting the 'Schweitzerian' model may become '...anti-vivisectionists at heart'." Adopting such an ethical stance would create tension between one's work and one's values, and surely decrease the comfort level with which one approaches daily activities in the laboratory. In my opinion, however, it is better to fall on that side of the balance than on the side which may make one's work so routine that consideration of animal welfare is in danger of being overlooked amongst the complexities of a given experimental procedure. Although most scientists do not contemplate the moral philosophy of their work on a regular basis, it is certain that they are very much aware of their moral responsibilities and take great effort to treat their animal subjects with the appropriate respect. Reading this book, however, should prompt one to reflect on their work for a few moments, which is good I think, and I was surprised that it had that effect on me. For a student or postdoctoral fellow just beginning to work with animals this should prove even more valuable. Finally, when the APS supports such critical self-evaluation for animal researchers, the Society moves a step beyond regulations and compliance issues by affirming that the reason why scientists treat animals with respect is not because they are forced to do so. ❖

Michael Brands
University of Mississippi
Medical Center

Books Received

Cellular and Molecular Neurobiology.
C. Hammond. 2nd Edition.
San Diego, CA: Academic, 2001, 493 pp., illus., index, $115.00.
ISBN: 0-12-311625-2.

Comparative Cellular and Molecular Biology of Ovary in Mammals: Fundamental and Applied Aspects.
Sardul S. Guraya.
Enfield, NH: Science Publisher, 2000, 327 pp., illus., index, $137.50.
ISBN: 1-57808-127-0,

Computational Neuroscience: Realistic Modeling for Experimentalists.
Erik De Schutter (Editor).
Methods & New Frontiers in Neuroscience.
Boca Raton, FL: CRC, 2001, 348 pp., illus., index, $99.95.
ISBN: 0-8493-2068-2.

The Infant's World.
Philippe Rochat.
The Developing Child Series.
Cambridge, MA: Harvard Univ. Press, 2001, 262 pp., illus., index, $29.95.
ISBN: 0-674-00322

Mitochondria in Pathogenesis.
John J. Lemasters and Anna-Liisa Nieminen (Editors).
New York: Kluwer Academic/Plenum, 2001, 529 pp., illus., index, $125.00.
ISBN: 0-306-46433-0.

Vacation Stories: Five Science Fiction Tales.
Santiago Ramón y Cajal.
Translated from the Spanish by Laura Otis
Champaign, IL: Univ. of Illinois Press, 2001, 270 pp., $19.95.
ISBN: 0-252-02655-1.

APS Member Obituaries on Web

The Society wishes to acknowledge deceased Society members with expanded obituaries on our Web site. Obituaries for publication on the Society's Web page should be submitted via Email to the APS Webmaster (webmaster@aps.faseb.org) or by mail to Dr. Martin Frank, Executive Director, The American Physiological Society, 9650 Rockville Pike, Bethesda, Maryland 20814. Please include the individual's full name, date of birth and death, education and professional affiliations, and any other details in remembrance of the individual you wish to acknowledge, along with a photo, if available.

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Prior Positions:

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

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

IMPORTANT INFORMATION:

Do not include a curriculum vitae or reprints.

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Scientific Meetings and Congresses

August 15-19

9th Annual Advances in Tissue Engineering. Houston, TX. *Information:* ATE Course Coordinator, Rice University, Center for Excellence in Tissue Engineering, Mail Stop 142, PO Box 1892, Houston, TX 77251-1892. Tel: 713-348-4204; fax: 713-348-4244; email: cpheley@rice.edu; Internet: http://dacnet.rice.edu/~bioe/tissue.

August 19-22

7th World Congress for Microcirculation, Sydney, Australia. *Information:* Internet: http://www.ozemail.com.au/~worldcongress.

August 26-30

Fifth International Symposium on Mass Spectrometry in the Health and Life Sciences: Molecular & Cellular Proteomics, San Francisco, CA. *Information:* Marilyn F Schwartz, Conference Coordinator, Dept. of Pharmaceutical Chemistry, University of California, San Francisco, CA 94143-0046. Tel: 415-476-4893; email: sfms@itsa.ucsf.edu.

August 26-September 1

XXXIV International Congress of Physiological Sciences, Christchurch, New Zealand. *Information:* Congress Secretariat, The Conference Company, PO Box 90-040, Auckland, New Zealand. Tel: +64-9-360-1240; fax: +64-9-260-1242; email: info@tcc.co.nz; Internet: http://www.iups2001.org.nz.

September 2-5

Cell & Molecular Biology of Membrane Transport Systems and Disorders, Greenmount Beach Resort, Coolangatta, Gold Coast, Queensland, Australia (an Official Satellite Meeting of the International Union of Physiological Sciences Congress 2001). *Information:* For Abstract Submission and further Conference information, please visit the Conference Website: http://www.uq.edu.au/~uqdmarko.

September 2-6

2001 Thermal Physiology Symposium (Sponsored by IUPS Commission of Thermal Physiology), Wollongong, Australia. *Information:* Internet: http://www.uow.edu.au/health/thermal2001

September 14-16

Fourth International Congress on peer Review in Biomedical Publication, Barcelona, Spain. *Information:* Annette Flanagin, JAMA, 515 N. State Street, Chicago, IL 60610. Tel: 312-464-2432; fax: 312-464-5824; email: jama-peer@ama-assn.org. OR Jane Smith, BMJ Publishing Group, BMA House, Tavistock Square, London, WC1H 9JR, UK. Tel: +44-171-383-6109; fax: +44-171-383-6418; email: jsmith@bmj.com.

September 19-20

Microarray Data Analysis. Using Statistics and Standards to Navigate the Microarray Data Minefield, Alexandria, VA. *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.

October 3-6

Heart and Brain: Signaling Pathways in Complex Human Diseases, San Diego, CA. *Information:* University of California, San Diego, Office of Continuing Medical Education, 9500 Gilman Drive, La Jolla, CA 92093-0617. Tel: 858-534-3940 or 888-229-6263 (toll free); fax: 858-534-7672; email: ocme@ucsd.edu; Internet: http://imm.ucsd.edu.

October 4-5

Tissue & Genetic Engineering for the Treatment of Arthritic Diseases, Providence, RI. *Information:* The Knowledge Foundation, Inc., 18 Webster Street, Brookline, MA 02446, USA. Tel: 617-232-7400; fax: 617-232-9171; email: custserv@knowledgefoundation.com; Internet: http://knowledgefoundation.com.

October 4-6

Neurobiology of Eye Movements: From Molecules to Behavior, Cleveland, OH. *Information:* New York Academy of Sciences, 2 East 63rd Street, New York, New York 10021. Tel: 212.838.0230 ext. 324; Fax: 212.838.5640; Email: conference@nyas.org; Internet: http://www.nyas.org/scitech/contents/neuroeye/index.html.

October 4-7

Biomedical Engineering Society Annual Fall Meeting, Durham, NC. *Information:* Biomedical Engineering Society, 8401 Corporate Drive, Suite 110, Landover, MD 20785. Tel: 301-459-1999; fax: 301-459-2444; email: bmes2001@bmes.org; Internet: http://www.bmes2001.duke.edu.

October 4-7

Second International Congress on Vascular Dementia, Paphos, Cyprus. *Information:* Secretariat, Second International Congress on Vascular Dementia, PO Box 50006, Tel Aviv 61500, Israel. Tel: +972-3-5140000; fax: +972-3-5140077; email: vascular@kenes.com; Internet: http://www.kenes.com/vascular.