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Integrating the Life Sciences from Molecule to Organism

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Peace, Love, and PLoS

The Press Conference

On June 26 I had the pleasure of attending a press conference at the National Press Club. Public Library of Science (PLoS) co-founder Michael Eisen held the press conference to announce that Rep. Martin Sabo (D-MN) was ready to introduce the "Public Access to Science Act." This legislation would "exclude from copyright protection works resulting from scientific research substantially funded by the Federal Government." It sounds simple enough, but believe me, it isn't.

As PLoS's clever use of Robert Indiana's 1973 Love Stamp for their own logo in some of their promotional material implies, they are continuing to cultivate their carefully crafted image of a grass roots movement. I went to the PLoS press conference because I wanted to learn first-hand about the latest efforts by Eisen et al to make science truly free.

PLoS cofounder Eisen stood before us, armed with a publicist and an advertising agency, not to mention a $9 million grant from the Gordon and Betty Moore Foundation. He started with the same refrain we have heard for four years: that we must make science free, because the present system (*1*) denies the public access to scientific information, and (*2*) inhibits the exchange of science to scientists. The examples given for why science ought to be freely available on the web were the non-scientist breast cancer sufferer searching for information about her disease and treatment options and the incredibly fast dissemination of information about the SARS epidemic.

The press conference also included Bill Hillsman of Northwood Creative Advertising unveiling a 30-second TV commercial intended to make the public familiar with the PLoS name and sympathetic to the idea that science should be free. This spot features a not-so-ordinary-looking man who walks out his front door, briefcase in hand, and rather than getting into a car or walking to the bus stop, just lifts off into the sky without any visible source of propulsion. The voiceover says, "In the year 2003, the Public Library of Science made it possible for people all over the world to have access to the latest scientific discoveries. Shortly thereafter, things began to change."

My favorite thing about this commercial is that the first thing you see is a newspaper landing on the man's doorstep. Taking the PLoS backers' arguments at face value, if even the people in the poorest part of Africa are so wired that they need free online access to the scientific literature, why is this man receiving a newspaper? Furthermore, why does this "ordinary" citizen think it's okay to pay for a newspaper but not a peer-reviewed scientific article about his grandmother's diabetes?

The last speaker at the press conference was Michael Erlandson, who is the chief of staff for Congressman Sabo. Erlandson described the bill Sabo was about to introduce that would make it impossible to copyright any articles based upon scientific research "substantially funded" by federal agencies. In other words, such research would all go immediately into the public domain, meaning that no one, not the publisher, not the authors nor researchers, would hold the rights to that work. It could be used (or changed, amended, sold, or simply lifted without attribution) by authors—scrupulous or otherwise. Indeed, it could be taken and resold by other publishers, without the permission or knowledge of the author.

The argument underlying this bold proposal is that, as US taxpayers, we have already paid for the science that is federally funded (such as research supported by grants from the NIH). Therefore, why should any of us, scientist and patient alike, have to pay again to read the results of that research? That sounds good, but some of my tax dollars also go to wheat and other farm subsidies, and I don't see anyone handing me free loaves of Wonder Bread.™

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The Public

Results of scientific research have never been more accessible to the layperson than they are right now. Online journals are searchable on the Internet, and the full text of APS journals is searchable through *Google*. All APS content is already free online after 12 months. Moreover, those researching medical conditions can still obtain abstracts from more recent APS journal articles, show them to their doctors, and then write to the APS for more information. In such cases, I direct the person to the journal editor. Those who wish can also buy a single article for $8. In our society, consumers are used to paying for things they want or need: they buy their bread, their gourmet coffee, and their newspapers. When they support public television or radio, they even pay for the federally subsidized news they could be getting for free. The point is that people can get to the information they want, very often for free. But even the very newest research is available for a reasonable price, as would be any other magazine, newspaper, or book they might want to read.

The Scientists

The other argument is that subscription-based journals inhibit exchange of science to scientists. However, the reality is that scientific journal articles have never been more accessible. Online journals allow unprecedented access to abstracts and full text articles. Libraries, aggregators, and "portals" such as the HighWire Library of the Sciences and Medicine—of which the APS journals are a part—allow access so seamless that researchers often can't tell who paid for the content (5). This has been so successful that many of them are convinced that the content is free. I am proud to work for a society that is as generous, flexible, and innovative about disseminating science as APS has been throughout its history. APS has been one of the first to (*1*) put journals online; (*2*) make access to online articles free 12 months after publication; (*3*) move to web-based peer review; (*4*) publish articles online ahead of print; (*5*) send free print journals to undeveloped countries and join online consortia supporting developing countries; and (*6*) give authors a choice of paying a fee to allow their article to be published with open access (1). We are still holding out against complicated licensing agreements to libraries, or multi-site licenses that would help us recover the revenue lost when entire universities gain access to content as a result of one online subscription. The APS has long understood what the PLoS backers are pointing out, namely, that institutions are paying for science coming and going. That is why our particular subscription-based model distributes costs among authors (through author fees), readers (through individual subscriptions or pay-per-view charges), and institutions (through library subscriptions).

It is precisely because of our experience with author fees and our authors' dislike for them, that we are not sure whether the open access models will work. In fact, when PLoS first announced its new journals and new model, it was criticized by some authors and open access proponents who objected to the steep $1,500 fee for publishing an article. To borrow some 1960s idioms, the "free-love freaks" found themselves in the position of the "pigs." Douglas Carnall, a general practitioner who runs a web site to publish his own work, wrote in the online Rapid Responses to an article on the PLoS model in the *BMJ*, "Wow! £936 to have your article published! That's expensive…That Harold Varmus must be on a good salary! Or perhaps it is being priced to fail?" (2) Gunther Eysenbach, Editor and Publisher of the *Journal of Medical Internet Research*, wrote, "I wonder why—if you have $9 million—you still need to charge the authors three times more than we charge for a *JMIR* article, although we do not have any funding for the journal (except $500 minigrants for fee waivers for needy authors from the Soros Foundation)." (4)

APS is offering an open-access option for authors publishing in *Physiological Genomics*. I will be interested to see how authors will respond to the choice to pay a fee to allow open access to their articles. No doubt we will all learn something. I certainly wish the PLoS Publishers the best of luck with their two new journals, both of which will be published with an author-fee based, open access model (without the choice).

The PLoS example of information sharing during the SARS epidemic shows that traditional publishing—now faster and more accessible than ever—does not hinder access to important information during a crisis. Through a combination of published articles in journals like the *New England Journal of Medicine*, *The Lancet*, and *Science*, along with unpublished data and news on the WHO and CDC web sites, researchers and doctors were able to share as quickly as possible information on this fast-moving and deadly disease.

For some PLoS backers, however, there is another access issue, namely, whether authors can use others' published data. But is there really a problem as things now stand? It is the very nature of the activity of science that researchers will take others' works and replicate them (or try to), expand on them, try them another way. Is there anything about the way we publish now that hinders this activity? Even if an author wants to borrow something published, he or she need only ask permission to use a table or figure, and the request will be granted. APS never has charged for or denied this kind of permission request. We also support and, in fact, instruct our authors to deposit genomic and other data into the DDBJ, EMBL, and GenBank, and most recently, the GEO data bank for micro array data. When I reminded Eisen

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privately that all journals allow data to be used with correct attribution and even parts of articles such as figures and tables as long as permission is requested, he claimed to be too busy to ask for permission. At least now, he only has to ask permission from publishers. As Michael Held, Executive Director of The Rockefeller University Press, has previously pointed out, if authors were to retain copyright—a less radical approach used by some journals, including the new PLoS journals—"granting copyright back to authors…could prevent any form of free access because permission to post material would have to be obtained from each individual author"—a truly onerous task (7). While putting a percentage of science in the public domain would eliminate that burden regarding at least those federally funded articles, one must think through the consequences before assuming that this is what all scientists really want. At what price freedom?

Copyright

The proposed legislation that would exclude all federally funded research from copyright protection speaks to the desire of some scientists to use data freely—to reuse and even redistribute data without getting permission. But why was copyright developed in the first place? In its first instance, in 16th century England, it was developed to protect the rights of printers, but it very quickly evolved to protect the rights of authors, and was written into the US Constitution as such. In fact, it is tied to the patent clause, and was intended to "promote the progress of science and useful arts," by allowing authors potential commercial benefit from their work.

Note that PLoS is not suggesting that patent law be weakened in this proposed bill. Apparently they believe that it's okay for scientists to benefit financially from work that is patentable, but not okay for publishers to be compensated for the work they perform in order to disseminate research on the scientists' behalf. Nevertheless, even the PLoS folks have stepped away from the original notion that the arrival of the web makes it unnecessary for journals to exist because scientists can post their work and make it freely available to all or that all research should be put into a national data base. Even they have had to admit that there is some value in the recognition that publications offer prestige, a niche, a community that renders research more accessible and more meaningful by putting it in context. As a result, PLoS backers are starting two journals of their own.

The Evolution of PLoS

At the press conference, Eisen reviewed the history of the PLoS movement and made some interesting statements. He said that PLoS supporters first tried to change publishing from within, by asking publishers to view the cost of publishing as a cost of research. However, the publishers rejected the notion. Next, PLoS backers sought to generate leverage by asking scientists to sign a letter pledging to boycott journals that do not permit open access. Over 30,000 scientists signed the PLoS boycott letter, but Eisen asserted that the effort failed because publishers still wouldn't change their ways. Finally, PLoS received the $9 million grant, making it possible to start two journals using their open access model.

This benign, inclusive description of how their approach to a new-and-improved publishing model evolved is not quite the way I remember the events of the last four years. First, I remember a proposal from then NIH Director Harold Varmus that all research should reside in one database at the National Library of Medicine (NLM) ("E-Biomed") and be freely accessible to all. As the dialogue that it invited got under way and the proposal evolved into a repository of journal articles as well as its own peer-review system, I remember being told that if publishers couldn't afford to give vetted, copy edited, typeset files to the NLM, with no compensation, than we simply didn't know how to produce our journals efficiently. If this meant that an important source of income to scientific societies would be lost, societies would simply have to find other sources of income. Publishers found themselves defending their expenses when no real analysis of cost had been done by the E-Biomed proponents (6).

When the PLoS boycott deadline came and went, PLoS claimed that the boycott failed because the publishers wouldn't change. But could it be that it failed because so many of the scientists who signed it didn't follow through on what they said they would do? PLoS cofounder Pat Brown's article in *Cell*, published in August 2001, is but one good example (8). When I queried some of the signatories about this discrepancy between pledge and action, they said essentially that they didn't really mean it, but that they just wanted to make a point. PLoS's spin on these events is comparable to saying that a labor strike in which most of the union members crossed the picket line failed because the bosses did not meet the workers' demands.

Now PLoS has decided to start two journals. Having started some myself, I won't underestimate the importance of the passion their editors have for the project. That alone will give them a great start. Of course the $9 million grant doesn't hurt, either.

The Publishing Model

The financial aspect of the open access publishing model, in which the author pays a fee to be published, and the "user" (a.k.a. reader or erstwhile subscriber) pays nothing, may end up being one that works, if not in this precise form then in some variation that we have not yet considered. APS publications, which already use a publishing model that relies on diverse revenue sources, are not particularly threatened by this prospect. We never relied solely on the wealth of libraries to support us, nor have we relied heavily on advertising. It remains to be seen, however, how scientists will react to an open-access model that asks them to foot the whole bill. More important, perhaps, is the question of how their funding agencies will react. I have heard it said that scientists will have to pressure funding agencies to support publication costs, but the competition in some fields is so intense that many scientists are focused solely on getting a score high enough to be

funded. Even the *Guide to Business Planning for Launching a New Open Access Journal* published by the Open Society Institute states that "researchers engaged in especially large-scale or long-term projects might consider attempting to … negotiate a government grant that extends … to also encompass dissemination." (3) How many scientists are in this position? There is a troubling elitism running through this freedom movement.

Other elements of the open-access model still seem a little fuzzy, too. What about authors who are not federally funded? Or not funded at all? How about international authors? Fifty percent of APS journal submissions and 39% of APS journal articles published are from authors outside the US. If those authors cannot afford to pay the fee, should US taxpayers be asked to subsidize what the APS will have to charge funded authors to cover the publication of research done outside the US?

Michael Eisen said to me after that press conference, "I bet we're a lot closer on this issue than you're willing to admit." Knowing all that APS has done and continues to do to disseminate science as broadly as possible, my response is, "Maybe." Maybe publishing will evolve to something that everyone (authors, researchers, libraries, the public) can be even happier with than they are now. I'm not against improvement—my staff and I devote considerable time and attention trying to improve our publications program. Why, then, has PLoS chosen to create expensive TV commercials to be aired during The Letterman Show and the Simpsons? Why the legislation? PLoS has an untested model. It might work, but at the same time it has the potential to do significant harm to other models that have proven their value. There doesn't seem to be a lot of peace and love in this full-bore, expensive and high-powered assault on publishers in the guise of a grass-roots movement. Never mind that the PLoS backers say they're not attacking other journal publishers; actions speak louder than words. In the meantime, I'm going to keep doing my job, working on these wonderful APS journals. Peace, man. ❖

Margaret Reich
APS Director of Publications

Acknowledgment

I would like to thank Alice Ra'anan for her advice and help with this article.

References

1. APS unveils an open access choice for authors of *Physiological Genomics*. *The Physiologist,* 46: 105, 2003.
2. Carnall, D. Publishing's getting expensive! Published Jan 3, 2003, online as a Rapid Response to L Eaton. "Free medical publishing venture gets under way." *BMJ* 326: 11b, 2003.
3. Crow, R., and Goldstein, H. *Guide to Business Planning for Launching a New Open Access Journal*, Ed 1.0, pub January 2003 by the Open Society Institute, p. 31.
4. Eysenbach, G. "Open access monopoly may threaten smaller journals." Published Jan 8, 2003, online as a Rapid Response to L Eaton. "Free medical publishing venture gets under way." *BMJ* 326:11b, 2003.
5. Frank, M. Creating a better mousetrap! A matter of opinion. *The Physiologist*; 45: 3, 2002.
6. Frank, M. No free lunch. *The Physiologist* 44, 2001.
7. Held, MJ. "Proposed legislation supports an untested publishing model." *J Cell Biol.* 162: DOI: 10.1083/jcb.200307018, 2003.
8. Liu, R., Liu, H., Chen, X, Kirby, M., Brown, P., Zhao, K. Regulation of CSF1 promoter by the SWI/SNF-like BAF Complex. *Cell*; 106: 309-318, 2001.

Gift Planning Opportunities

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

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

• Immediate Gifts: Cash, gifts of appreciated securities, gifts of closely 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.: 301-634-7118, Email: mfrank@the-aps.org), or Robert Price, Director of Finance (Tel.: 301-634-7173, Email: rprice@the-aps.org)

Time: 5:45 PM, Monday, April 14, 2003
Place: San Diego, CA

I. Call to Order

The meeting was called to order at 5:46 PM by President Barbara A. Horwitz, who welcomed the members to the 156th Business Meeting of the American Physiological Society. A booklet containing the agenda and a listing of all the APS award recipients was distributed.

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 D. Neil Granger, LSU Health Science Centers, LA, as President-Elect (April 15, 2003-April 24, 2004). The two newly elected Councillors for three-year terms are Helen E. Raybould, School of Veterinary Medicine, University of California, Davis, and Jeff M. Sands, Emory University, GA (April 15, 2003-April 5, 2006). They will assume office at the close of the Annual Meeting. They are replacing Douglas Eaton and Steven Hebert, who are completing three-year terms on Council.

III. Proposed Amendments to the Bylaws

In compliance with the Society Bylaws, the proposed amendment to the Bylaws to increase the number of Councillors from six to nine was put before the membership for a vote. This proposed amendment was published in *The Physiologist* [43(6): 472, 2002].

The motion was unanimously passed by the membership 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~~ nine other regular members. The terms of the President and President-Elect shall be one year. The terms of the ~~six~~ nine 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~~ two-thirds of the elected members of Council.

The Chairpersons of the Publications Committee, the Finance Committee, the Program Committee, the Education 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.

SECTION 4.b. *Nominating Committee*. The Nominating Committee shall consist of the immediate Past President, who will serve as Chairperson, and each member of the Section Advisory Committee. The Chairpersons of the Joint Program Committee and Publications Committee shall serve as ex-officio members. The Nominating Committee shall select a slate from candidates nominated by the Society membership. The slate presented for vote shall be such that no more than one of the ~~six~~ nine Councillors shall be from a single institution and no more than two of the ~~six~~ nine shall have a primary affiliation from the same section. The Nominating Committee shall make two nominations for the office of President-Elect and ~~five~~ six nominations for Councillor.

IV. State of the Society

President Barbara A. Horwitz addressed the meeting and spoke on the state of the Society. She first discussed where the Society stood with respect to the areas of education, translational research, publications and meetings. She then discussed the challenges facing the Society.

• Education/Outreach/Mentoring

Horwitz reported that the Teaching Archives web site registered 45-75 thousand hits this month; had 1,100 unique users; and 720 visitors downloaded material from the site. She explained that the site is used to reach out to students of all levels and ages, and to help foster careers and provide tools for the students to use. The material in the Archives is submitted by APS members.

The Education Committee, in conjunction with the Association of Chairs of Departments of Physiology (ACDP), has developed a Medical Physiology Curriculum Objectives Project. This is posted on the Careers web site. The purpose of developing these core competency criteria is to provide guidelines for the breadth and depth of knowledge in the physiological principles and concepts that are considered minimal and essential for further progress in understanding mechanisms of disease and body defenses.

The Education Committee, with the APS Education Department, is developing a list of graduate skills and competencies. Once complete, this material will be used to assist mentors in identifying skills that students should develop during training.

A Trainee Advisory Committee has been established. This Committee will advise Council regarding the needs of young scientists, and will assist in planning activities (symposia, an Email newsletter, web site, etc) suited to these young scientists. Each Section will have a representative on the Committee.

A mentoring web site is being created and will reside on the APS Careers web site. Here, tips and information will be available for both mentors and mentees. One of the main goals will be to offer structure and advice for mentors. In conjunction with this site, the Society is going to be offering a new award—the Bodil Schmidt Nielsen Distinguished Mentor and Scientist Award. This award will be given for the first time at the EB 2004 meeting. The guidelines for nominating a candidate will be available Fall 2003.

Horwitz said that one of the main

objectives of the Careers web site is to provide a public face for physiology to the outside world. The site has recently been redesigned and now contains eight sections of content. These sections are: Elementary School, Middle/High School, Undergraduate, Graduate/Professional, Postdoctoral Fellow, New Investigator, Established Investigator, and General Public. Within the Undergraduate section there is a link to "Meet a Physiologist." This section contains small vignettes of several physiologists who work in a wide range of occupations. This section is still under construction.

• Translational Research

Horwitz said that due to a continued focus in the APS journals on translational research, the number of translational research submissions to the journals has doubled over the past year. Also the Publications Committee has set a goal to have an article published every two months in the "Physiology in Medicine" series that is published in the *Annals of Internal Medicine*. The first article was published on April 15, 2003. Although the *Annuals of Internal Medicine* owns the copyright to these articles, APS members will have free access to the articles from the APS publications' web site.

There is also a concerted effort to have an increased number of symposia at the Experimental Biology (EB) meetings and APS-sponsored conferences dedicated to translational research. The first APS conference focusing on translational research will be held in September 2004, "Immunological & Pathophysiological Mechanism in Inflammatory Bowel Disease."

Finally, APS will try to partner with other societies, whose membership is largely clinical, to try to attract them to the EB meetings. In addition, APS will be sponsoring a symposium at the American Society for Nephrology's annual meeting.

• Publications

APS members receive free online access to the APS journals as well as the Legacy Project.

The Legacy Project consists of the content of the APS journals back to 1898. The first stage, content from 1987 to the present, has been posted; in the second stage, content from 1966 will be posted. The second stage should be completed by the end of summer 2003. The final stage, content dating back to 1898, should be completed in 2004. The content will appear as pdf documents that are searchable.

A Task Force on Classic Papers has been established. This Task Force will identify classic papers in physiology within the APS journals and solicit essays that describe the importance of each paper work and how it influenced the field of physiology. Hershel Raff is the Task Force Chair.

Horwitz said that submissions to and citations from the APS journals have increased. She praised the journal editors saying that they have been doing an outstanding job. Three editors will be retiring on July 1. They are Stan Schultz, editor of *NIPS*; Martin Kagnoff, editor of *AJP - Gastrointestinal & Liver Physiology*; and Victor Dzau, editor of *Physiological Genomics*. Horwitz asked each one to stand so that the membership could recognize them.

• Meetings

Horwitz said that the registration numbers for EB 2003 were higher than expected. It was her observation, from the sessions that she attended, that there had been good interaction between the speakers and the audience, and that EB 2003 was a successful meeting. EB 2004 will be in Washington, DC. The APS Joint Program Committee has already begun working on finalizing sessions for that meeting.

There are two upcoming APS Conferences. The first will be September 10-14, 2003, and is entitled "Aldosterone & ENaC: From Genetics to Physiology." It will be held in Banff, Canada. The second will be October 1-4, 2003, and is entitled "Understanding Renal & Cardiovascular Function through Physiological Genomics." This conference will take place in Augusta, GA.

The International Congress of Physiological Sciences will be March 31-April 5, 2005, in San Diego, CA. Shu Chien is the Chair of the National Organizing Committee, and Walter Boron is the Chair of the International Scientific Program Committee.

• Challenges to the Society

Publications

Horwitz said that technology has made online publishing easier, faster and more efficient; but with this comes many uncertainties. There is uncertainty as to what will happen to print versions of the journals, and what will happen to journal reprint orders.

Free access is available for the APS journals only after 12 months. She said that there are people who think free access should be available immediately. However, APS generates much of its income from subscriptions. In response to those who think free-access should be immediate, APS will be trying an experiment with its publication *Physiological Genomics*. Authors will be allowed to pay an upfront fee of $1,500 upon manuscript acceptance that will allow free access to their manuscript immediately. If the author chooses not to pay this fee, the article will remain under the normal publication regulations; free-access will be available after 12 months. The new pricing model for *Physiological Genomics* will begin July 1, 2003.

Horwitz told the membership that the Publications Committee and Council have been dealing with a wide range of ethical problems ranging from a lack of appropriate attribution, to plagiarism and incorrect use of animal/human subjects. In response to these issues, APS put into place a set of guidelines with which to deal with these issues.

Finances

Publications, meetings revenue, grants, dues and the reserves fund the APS programs and operating costs. Currently, the Society has approximately $31.4 million in its reserve accounts. However, the Society's reserves have decreased significantly over the past several years. Last year, the reserves were down approximately 12%, and they were down approximately 5% the prior year. Although there is an increase in the number of submissions to the journals, there is a

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general decrease in the number of subscriptions. Horwitz explained that the Society's expenses are growing faster than its income. She said that Council and the Finance Committee are trying to develop a plan to stabilize the finances. The APS staff has been asked to decrease the 2003 expenses by $160,000. Also, the staff and APS Committees have been asked to review all APS programs for effectiveness. Six programs were reviewed and the evaluations were presented to Council at this meeting.

Horwitz said that, in response to the current financial situation, subscription fees will increase by 8.5%, page charges will increase $10 per page, and non-members will be charged an additional $50 per figure for color ($300). She also announced the establishment of the APS Endowment Fund. The Endowment Fund will be used to support various award programs. It was started with $5 million, and the goal is to have $10 million in the Fund by 2010. She also asked the membership to send Council any suggestions they had for growing the income and stabilizing the finances.

Horwitz then thanked the APS membership for being allowed to serve, saying it was a privilege. She also thanked the APS staff for their help.

V. Report on Membership

A. Summary of the Membership Status

President-Elect John Williams reported on the status of the Society membership. As of March 1, 2003, the current membership of the Society is 10,980, of which 7,618 are regular members, 38 are honorary members, 1,086 are emeritus members, 81 are affiliate members, and 2,157 are student members. The Society also has 23 Sustaining Associate members.

B. Deaths Reported Since the Last Meeting

Williams 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. Ray G. Daggs Award

Ray G. Daggs was the APS Executive Secretary-Treasurer from 1956 until his retirement in 1972. In tribute to his devotion to the Society, the Ray G. Daggs Award was established and is given annually to a physiologist for distinguished service to the Society and to the science of physiology. The recipient receives $500 and expenses to attend the Experimental Biology meeting. Horwitz presented the 2003 Ray G. Daggs Award to Stanley G. Schultz, University of Texas Medical School.

In selecting Schultz as this year's recipient, the Daggs Award Committee noted that Schultz had been a distinguished leader in physiological research and had provided outstanding service to the profession of physiology in general and to the APS in particular for many years. He had served as a member of Council, as APS President, and as chairman of the Long-Range Planning Committee. He had been instrumental in establishing the Distinguished Lectureships of the APS sections. He had also served as Editor-in-Chief of *Physiological Reviews*, and since 1994-2003, as Chief Editor of *News in Physiological Sciences*. Additionally, Schultz had been very involved with the US National Committee of the International Union of Physiological Sciences (IUPS). He had been a mem-

APS President Barbara Horwitz presents the Ray G. Daggs award to Stanley Schultz, University of Texas Medical School.

APS President Barbara Horwitz presents the Arthur C. Guyton Teacher of the Year Award along with Jason Malley, Elsiever, to George Ordway, University of Texas Southwestern.

ber of the Committee from 1991-1998, and served as chair from 1995-1997. He was responsible for the application to the IUPS that led to the selection of the United States as the host country for the International Congress of Physiological Sciences that will be held in San Diego in 2005. As a scientist, Schultz had been an important force in the development of the field of membrane transport, particularly as it relates to the gastrointestinal tract. His studies have contributed substantially to the understanding of transepithelial ion transport and its regulation. One of his papers has become a citation classic and he has received the Hoffman-LaRoche Prize for Outstanding Contributions to Gastrointestinal Physiology. Schultz has been recognized as one of the most highly regarded teachers in the field of physiology. He has repeatedly received recognition from medical students as the best lecturer in basic science, and has received a Golden Apple Award. He was selected as the Claude Bernard Distinguished Lecturer by the Teaching of Physiology Section in 1996, and received the Arthur C. Guyton Teacher of the Year Award from APS in 1999.

In his accepting the Ray G. Daggs Award, Schultz talked about how he became a member of the APS He said that his late mentor told him he was nominating Schultz for membership in APS. Schultz considered this to be a real honor, and has been honored ever since by being an APS member. He said that he considers the APS members to be members of his extended family.

B. Arthur C. Guyton Teacher of the Year Award

Before presentation of the Arthur C. Guyton Teacher of the Year Award was made, Horwitz introduced Allen Cowley, who gave the following tribute to Arthur Guyton.

"The instant loss of Dr. Arthur Guyton as a result of an automobile accident last week and the consequent loss of his wife Ruth on Saturday has stunned the physiology community and all who have known this remarkable man and his family. I am substituting here this afternoon for Dr. John Hall who holds the Guyton Chair of Physiology and who has returned home to coordinate services and memorial for the Guyton family.

"Although Dr. Guyton will be memorialized in many ways over the coming year, it is appropriate at this time of immediate mourning, to reflect upon the enormous contributions that this one man has made to physiology, to medicine, and to our American Physiological Society.

"His achievements are indeed legendary and must certainly place him among the great figures of 20th century science and medicine. This gentle man of science had an enormous influence upon the lives and scientific careers of many of us here today, and so many others who are not here today. He indeed directly trained over 150 scientists; 29 of which went on to become chairs of their own departments; six of which have become Presidents of the American Physiological Society (including our most recent President-elect Neil Granger). There is no one in history who has been more prolific in training physiologists and leaders of our discipline than Arthur Guyton.

"This is how many of us remember him—sitting in his wheel chair at his desk, always working, always smiling and happy, and welcoming you to discuss your work with him or to hear his latest ideas. Although severely crippled with polio during his final year of surgical training at Harvard's Peter Bengt Brigham Hospital in the mid-1940's, anyone who ever knew Arthur Guyton never thought of him as being handicapped. The man, his spirit, and his mind completely captivated you. Indeed, it captivated generations of students and scholars.

"There is no one who has had a greater impact upon the teaching of medical physiology than Arthur Guyton. His great skills as a teacher and communicator are reflected in his famous *Textbook of Medical Physiology*, currently in its 10th edition and co-authored for the past two editions with John Hall. This medical text, from the beginning, has been a best seller, indeed Saunders all time best seller among medical textbooks. It was always the student's choice and one of the few medical textbooks that they would read, whether it was assigned or not, because they could read it and understand complex concepts as presented by this master teacher. It was accordingly translated into more than 15 languages. This was a book that evolved early in Dr. Guyton's career based upon his clear and concise lecture notes. He wrote it, as he emphasized, to teach students, not to impress his professional colleagues. He was constantly at work in the evenings dictating sections of the next edition of his book. As described by his long-time secretary, Billy Howard, who faithfully transcribed many editions of this great opus, the tapes of his dictations would frequently be filled with the background sounds of his ten growing children.

"Although the nearly 45 generations of medical students that have learned the 'wisdom of the body' through the Guyton textbook would alone be enough to ensure his legacy, most of the professional physiology community might argue that his legacy resides in the remarkable contributions that he made in advancing our understanding of cardiovascular physiology. His pioneering contributions in the area of computational and systems biology; his concepts of cardiac output, fluid and electrolyte homeostasis; his concepts of long-term arterial blood pressure regulation and many others ideas have become part of the lexicon of terms and concepts that pervade our every discussions on these subjects: concepts of cardiac output and venous return; the Guyton pressure-diuresis theory of long-term pressure regulation; the chronic renal function curve; negative interstitial fluid pressure and its contribution in the balance of the capillary Starling forces and edema; the concept of whole body autoregulation and its role in tissue perfusion and cardiac output regulation…...the list goes on. Yet, from my own perspective, I believe that above all else, it could be that his pioneering applications of computational biology at the dawn of the digital age of com-

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puters may be one of his most important and lasting scientific legacies.

"It is only now after decades of progressive reductionism, that we are beginning to witness important signs of interest in the understanding of the complex interactions of the biological pathways—the new trend now being called 'systems biology'—capturing the fruits of the genome projects, bioinformatics, and non-invasive imaging techniques at the level of the whole cell and whole organisms.

"Beyond his remarkable contributions in science and education, Dr. Guyton gave generously of himself to the National Institutes of Health where, among his other many tasks, he served on the National Advisory Council of the NHLBI. He worked tirelessly for both the American Heart Association and the American Physiological Society. The APS was his greatest love and as a member of our Society for 54 years, he importantly helped to shape the society as we know it today. He served on the Council of the APS, he was the Chairman of the Finance Committee, and he was our 47th President. He also served as the President of FASEB. I won't attempt to summarize the many awards that Dr. Guyton received for his contributions to science, the administration of science, and as an educator except to say that they included being honored at the White House by President Dwight Eisenhower, by the American Heart Association with a life-time achievement award, and by the APS with the Wiggers Award and the Ray Daggs Award.

"What physiology meant to Arthur Guyton was perhaps best expressed in his president's address to the APS in 1975 that he titled 'Physiology: A Beauty and a Philosophy.'

'What other person, whether he be a theologian, a jurist, a doctor of medicine, a physicist, or whatever, knows more than you, a physiologist about life. For physiology is indeed an explanation of life. What other subject matter is more fascinating, more exciting, more beautiful than the subject of life.'

"One cannot begin to fully appreciate Dr. Guyton without an understanding of the role that his beloved wife Ruth and his family played in his life. Together, they raised a most extraordinary family of eight boys and two girls. All of them having graduated from Harvard Medical School (some with other graduate degrees in hand), and each is remarkably accomplished in their own field of endeavor. Many have asked how this could happen? It certainly was not by accident. Those of us who knew Arthur and Ruth Guyton and saw these children growing up have some understanding of what an extraordinary team effort this was. Together, they instilled both love and the excitement of learning and discovery in each one of these children. They involved them in activities such as the legendary family project and business of manufacturing laboratory electronic instruments (e.g., the Oxford cardiac output monitor). They read with them, they played with them, and they worked with them. They were a wonderful family.

"So this great couple is suddenly gone, and they will be greatly missed. Fortunately, the many lessons learned from the research and teachings of Dr. Guyton have been passed on to many generations of scientists and physicians and remain corner stones of wisdom in physiology and medicine. Both the scientific world and those who have benefited from the advances in knowledge for which he was responsible owe Arthur Guyton an enormous debt. Those of us who had the privilege of working closely with him have been forever influenced by his indomitable spirit and energy, his kind and gentle nature, and his warmth and generosity. A better role model for life and science could not be imagined. Thank you Arthur and Ruth Guyton."

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

APS Council: Back row: Dale Benos, Charles Tipton, Robert Carroll, Virginia Miller, J.R. Haywood, Helen Raybould, Jeff Sands, Douglas Eaton, Steven Hebert, and Peter Wagner. Front row: Kim Barrett, Susan Barman, D. Neil Granger, John Williams, Barbara Horwitz, John Hall, and Curt Sigmund.

APS Past presidents gather at EB: Back row: John Williams, D. Neil Granger, James Schafer, Barbara Horwitz, Walter Boron, Allen Cowley, and John West. Front row: David Bohr, Stanley Schultz, Shu Chien, and L. Gabriel Navar.

President Barbara Horwitz and Muriel Mandel present the Lazaro J. Mandel Young Investigator Award to Lori Birder, University of Pittsburgh School of Medicine.

President Barbara Horwitz presents the Arthur C. Guyton Award for Excellence in Integrative Physiology to John P. Collister, University of Minnesota.

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.

Horwitz introduced APS Executive Director Martin Frank and Jason Malley, Elsiever, who made the presentation to George A. Ordway, University of Texas, Southwestern. Ordway said he was "truly honored to receive the award, named after an outstanding educator and teacher, Arthur C. Guyton."

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 academic rank no higher than assistant professor and are pursuing research in respiratory physiology and medicine. Awards are made to APS members working in the United States, who have demonstrated outstanding promise based on their research program. Each recipient receives a $20,000 check for use in his/her respective research program, a plaque, and reimbursement of expenses to attend the Experimental Biology meeting.

President Horwitz presented the 2003 awards to Hunter Clay Champion, Johns Hopkins University, and Peter Lloyd Jones, University of Colorado Health Science Center.

D. 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

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President Barbara Horwitz and Glenn A. Reinhart, chair of the Liaison With Industry Committee, present the Liaison With Industry Award to Patrick T. Fueger, Vanderbilt University.

President Barbara Horwitz presents a plaque to Thomas E. Lohmeier, outgoing chair of the Water and Electrolyte Homeostatis Section.

President Barbara Horwitz presents a plaque to Hannah V. Carey, outgoing chair of the Committee on Committees.

President Barbara Horwitz presents a plaque to Allen W. Cowley, Jr., outgoing chair of the Long-Range Planning Committee.

President Barbara Horwitz presents a plaque to Steven Hebert, outgoing APS councillor.

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working in the United States who has demonstrated outstanding promise based on his or her research program. Each award is for $7,500 and is designated for the use of the awardee in his/her research program. Horwitz presented the 2003 Mandel Award to Lori Birder, University of Pittsburgh School of Medicine.

Horwitz introduced Muriel Mandel, window of Lazaro Mandel, and asked her to make a few comments about her husband. Mandel said her husband "was an inspiring teacher and gifted scientist. He was a mentor and friend to his students." She went on to say that her hope "is that the work will be timeless and satisfying to you. I hope you will feel a deep sense of peace and balance. He would want you to feel joy and success in your work, and above all have fun. Congratulations."

Birder thanked the society and considered it a great honor. "It will be put to very good use. Thank you."

Birder received a $7,500 check for use in her research program, a plaque, and reimbursement of expenses to attend the meeting.

E. 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 Horwitz presented the 2003 Arthur C. Guyton Award in Integrative Physiology to John P. Collister, University of Minnesota.

Collister thanked APS for the award and said that "this is truly such an honor to receive this award named after someone that is such a legacy in science. This award also embodies the spirit of mentorship." He also thanked his mentors Dr. Grey Fink and Dr. Osborne.

Collister received a $15,000 check for use in his research program, a plaque, and reimbursement of expenses to attend the Experimental Biology meeting.

Paul Kubes, University of Calgary Medical Center, accepts the Henry Pickering Bowditch Award from incoming President-elect D. Neil Granger.

President Barbara Horwitz presents the Walter B. Cannon Lecture Award to Shu Chien, University of California, San Diego.

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F. Liaison With Industry Awards

The Liaison With Industry Awards are given for the best abstract describing a novel disease model. This is the third year this award has been given. Horwitz and Glenn A. Reinhart, chair of the Liaison With Industry Committee, presented the 2003 Liaison With Industry Award to Patrick T. Fueger, Vanderbilt University.

Fueger thanked the APS and his mentors for the opportunities presented to him.

G. 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. Carol Liedtke, chair of the Women in Physiology Committee, presented the awards.

H. 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 nine pre-doctoral students who are within 12-18 months of receiving a PhD degree and are presenting a paper as first author at the spring meeting. Registration and $500 checks were given to the awardees.

Section Advisory Committee: Back row: Bruce Pitt, Thomas Lohmeier, Matt Grisham, Jeanne Seagard, Bill Chilian, Michael Wyss, Charles Lang. Front row: Ken Baldwin, Michael Jennings, Susan Barman, Stan Lindstedt, Penny Hansen, and Susan Wall.

I. Minority Travel Fellowships

Frank announced that 51 Minority Travel Fellowship awards, funded by NIDDK and NIGMS, were presented to minority students to help them attend the Experimental Biology 2003 meeting.

J. Recognition of Outgoing Section Chairs

Thomas E. Lohmeier, chair of the Water & Electrolyte Homeostasis Section and Jeanne L. Seagard, chair of the Neural Control and Autonomic Regulation Section, complete their terms at the close of this meeting. Horwitz thanked them for their service to their sections and to APS.

K. Recognition of Outgoing Committee Chairs

Horwitz recognized the outgoing committee chairs and thanked them for their service to the APS. The outgoing chairs are Mordecai P. Blaustein, chair of the Finance Committee, Hannah V. Carey, chair of the Committee on Committees, and Allen W. Cowley, Jr., chair of the Long-Range Planning Committee.

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President Barbara Horwitz presents a plaque to Celia Sladek, outgoing chair of the Section Advisory Committee.

APS President Barbara Horwitz and David Randall present the Randall Award to Linda MacDonald Glenn.

APS President Barbara Horwitz presents a plaque to outgoing Councillor Douglas Eaton.

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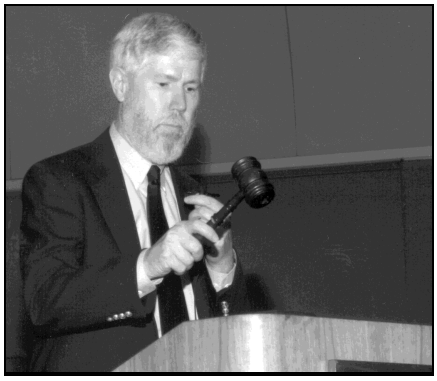
L. Recognition of Outgoing Councillors

Councillors Douglas Eaton and Steven Hebert will complete their terms at the close of this meeting. Horwitz expressed her pleasure at having had the opportunity to serve on Council with them and recognized their dedication and guidance to the Society.

M. New Business

Horwitz introduced Shu Chien, chair of the National Organizing Committee for the IUPS 2005 Congress. Chien briefly discussed the upcoming IUPS 2005 Congress. It will be the 35th Congress, and will begin on Thursday, March 31, 2005, in San Diego, CA. The program for the Congress is being prepared by the International Science Program Committee, the United States Program Committee, and the APS Joint Program Committee. Additional details can be located at http://www.IUPS2005.org. He asked that the membership submit ideas for symposia through this web site. It is not necessary to identify all the speakers at this time when submitting a symposia proposal. Chien said that the key to the success of this Congress will be through the programming. He went on to guarantee that the program will be perfect, even if the weather is not.



Incoming APS President John Williams

VII. Passing of the Gavel

Horwitz then passed the gavel over to John Williams, University of Michigan, the incoming President of the American Physiological Society.

Williams thanked Barbara for the past year of dedicated service to the APS. He said that she "kept everyone in line and kept the ship sailing straight." He also said he had learned a lot from both Barbara Horwitz and John Hall.

There being no new business, the meeting was adjourned at 7:15 PM, April 14, 2003. ❖

John A. Williams
APS President-Elect

Procter & Gamble Professional Opportunity Awardees

Once again, the APS has been able to recognize the valuable contributions of nine pre-doctoral 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 2003 in San Diego, CA 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. 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 2003. Awardees were:

Cardiovascular Section
Lynda M. Ludwig, Medical College of Wisconsin

Cell & Molecular Physiology Section
Melissa Palmer-Densmore, University of Minnesota

Comparative Physiology Section
Anthony R. Cammarato, Boston University

Endocrinology & Metabolism Section
Raul Camacho, Vanderbilt University

Environmental & Exercise Physiology Section
Scott Spier, University of Texas, Tyler

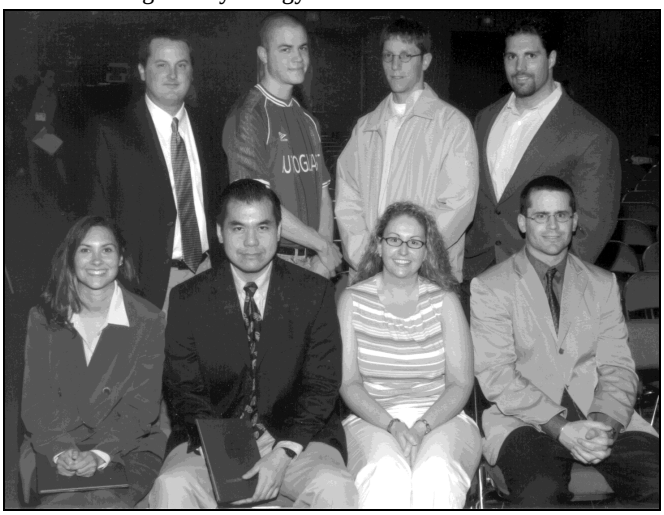
Neural Control & Autonomic Regulation Section
Matthew C. Zimmerman, University of Iowa

Renal Section
Wendell J. Lu, Vanderbilt University

Respiration Section
Dominic D'Agostino, R.W. Johnson Medical School

Water & Electrolyte Homeostasis Section
Elizabeth D. Loomis, Medical College of Georgia

The following sections did not make an award in 2003: Central Nervous System Section, Gastrointestinal Section, and Teaching of Physiology Section. ❖



Procter & Gamble Professional Opportunity Awardees.

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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 2003 in San Deigo, CA were eligible to apply for the Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Award. The APS Women in Physiology Committee, chaired by Carole M. Liedtke, Case Western Reserve University, selected 36 awardees from a pool of 101 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 2003 meeting. Awards were presented during the APS Business Meeting at EB 2003. Awardees were:

Amit Badhwar, Univ. of Western Ontario
Zsolt Bagi, New York Medical College
Tracy Baker-Herman, Univ. of Wisconsin
Ryan W. Bavis, Univ. of Wisconsin
Jason R. Carter, Michigan Technological Univ.
Qi Che, Univ. of Nebraska Medical Center
Anna Csiszar, New York Medical College
Xuelin Cui, New Jersey Medical School
Michael J. Cutler, Univ. of North Texas
Alison A. Dungey, Univ. of Western Ontario
Tasmia Duza, Univ. of Rochester Medical Center
Scott Earley, Univ. of New Mexico
Carie Facemire, Univ. of North Carolina
Angela J. Grippo, Univ. of Iowa
Bryan C. Hains, Yale Univ.
Thomas J. Hawke, Univ. of Texas
Hantz Hercule, Texas Southern Univ.
Shawn D. Hingtgen, Univ. of Iowa
Darren S. Hoffman, Univ. of Iowa
Troy A. Hornberger, Univ. of Illinois
John F. LaDisa, Medical College of Wisconsin
Lila P. LaGrange, Univ. of Texas Health Sci. Ctr., San Antonio
Eric Lazartigues, Univ. of Iowa College of Medicine
Zhenbo Li, Univ. of Iowa
Timothy E. Lindley, Univ. of Iowa
Maria T. Llinas, Univ. of Mississippi Medical Center
Sarah D. McCarter, Univ. of Western Ontario
Joe T. McDonald, Univ. of Kansas School of Medicine
Brett M. Mitchell, Medical College of Georgia
Niwanthi Rajapakse, Monash Univ.
Shubha Shastry, St. Elizabeth's Medical Center
Jamie T. Stark, Univ. of Illinois
Jena J. Steinle, Texas A&M Univ.
Mark K. Todd, Univ. of Southern California
Pierre Turini, Centre Hospitalier Universitaire Vaudois
Johana Vallejo, Univ. of Missouri, Columbia

Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Awardees.

Experimental Biology 2004
April 17-21, 2004, Washington, DC
Physiology InFocus
Large Scale Systems Biology
Organizer: John A. Williams

Session I: Gene Expression Transcriptome
Session II: Proteomics
Session III: Large Scale Systems Biology
Session IV: Applications of Systems Biology in Physiology and Disease

Section Distinguished Lectureships

August Krogh Distinguished Lectureship of the APS Comparative Physiology Section
Lecturer: William Dantzler, Univ. of Arizona
Title: *A Vertebrate Renal Odyssey—Organic Solute Excretion and Water Conservation in Reptiles, Birds, and Mammals*

Carl Ludwig Distinguished Lectureship of the APS Neural Control & Autonomic Regulation Section
Lecturer: Cliff Saper, Harvard Medical School
Title: *TBA*

Carl W. Gottschalk Distinguished Lectureship of the APS Renal Section
Lecturer: Thomas Jentsch, Hamburg Univ., Germany
Title: *Chloride Transport in the Kidney: Insights From Mouse Models and Human Disease*

Claude Bernard Distinguished Lectureship of the APS Teaching of Physiology Section
Lecturer: Harold Modell, Physiology Education Research Consortium, Seattle, WA
Title: *Evolution of an Educator: Lessons Learned and Challenges Ahead*

Edward F. Adolph Distinguished Lectureship of the APS Environmental & Exercise Physiology Section
Lecturer: Reggie Edgerton, Univ. of California, LA
Title: *Learning and Memory in the Spinal Cord*

Ernest H. Starling Distinguished Lectureship of the APS Water & Electrolyte Homeostasis Section
Lecturer: Christopher Wilcox, Georgetown Univ.
Title: *Oxidative Stress and Functional NO Deficiency in the Kidney: A Critical Link to Hypertension?*

Horace W. Davenport Distinguished Lectureship of the APS Gastrointestinal Section
Lecturer: John Forte, Univ. of California, Berkeley
Title: *The Gastric Hydrogen Ion Cycle*

Hugh Davson Distinguished Lectureship of the APS Cell & Molecular Physiology Section
Lecturer: Peter Agre, Johns Hopkins Univ.
Title: *Aquaporin Water Channels at the Convergence of Physiology and Medicine*

Joseph Erlanger Distinguished Lectureship of the APS Central Nervous System Section
Lecturer: Paul Greengard, Rockefeller Univ., NY
Title: *Signal Integration in the Central Nervous System*

Julius H. Comroe, Jr. Distinguished Lectureship of the APS Respiration Section
Lecturer: Jerome Dempsey, Univ. of Wisconsin, Madison
Title: *Crossing the Apneic Thresholdd: Causes and Consequences*

Robert M. Berne Distinguished Lectureship of the APS Cardiovascular Section
Lecturer: Gary Owens, Univ. of Virginia
Title: *Molecular Regulation of Smooth Muscle Differentiation in Development and Disease*

Solomon A. Berson Distinguished Lectureship of the APS Endocrinology & Metabolism Section
Lecturer: Bert O'Malley, Baylor College of Medicine
Title: *Signalling Through the Steroid Receptor Coactivators*

Societal Lectures

Physiology in Perspective: The Walter B. Cannon Memorial Award
Christine E. Seidman, Harvard Medical School

Henry Pickering Bowditch Award
Robin L. Davisson, Univ. of Iowa

Walter C. Randall Lecture on Biomedical Ethics
TBA

Section-Sponsored Symposia

The SAGA of Fever
Clark M. Blatteis

Development of Arterial Oxygen Chemoreception in Mammals: Bench to Bedside
John L. Carroll

Polycystic Kidney Disease: From Bench to Bedside
Arlene B. Chapman

Control of Blood Flow in the 21st Century- More Questions Than Answers
William Chilian

Mitochondrial Function in Aging and Disease
Kevin E. Conley

The Role of Integrins in Vascular Cell Signaling and Regulation of Vascular Tone and Permeability
Michael J. Davis

Functional Connections Among Ponto-medullary Respiratory Neurons
James Duffin

Neural Control of Venous Capacitance Function in Health and Disease
Gregory D. Fink

Breathing and Walking Following Spinal Injury
David D. Fuller and Francis J. Golder

Insulin-independent Exercise Signaling Pathways
Laurie J. Goodyear

Claudin Expression and Function in the Kidney
Raymond C. Harris

A Bioinformatics How-To for the Wet-Lab Physiologist
Howard Jacob

New Genomic Technologies for Systems Biology
Anne Kwitek

Physical Activity: A Drive for Central Neural Plasticity
Jeffery Kramer and Tony Waldrop

Mediators of Liver Inflammation
Alex B. Lentsch

Use of Mouse Models to Understand the Pathophysiology of Diabetes: Implications for Preventing Complications
Derek Le Roith

Life after the PhD: Finding a Postdoctoral Fellowship
Carol Liedtke and Kathleen Berecek

Do Baroreflexes Play a Role in Long-Term Control of Arterial Pressure?
Thomas E. Lohmeier

Store-Operated Calcium Channels and Control of Muscle Contraction
Jianjie Ma

Stem Cells and Progenitors Cells: Biology, Physiology, and Therapeutic Applications
Keith March

Integrated Control of Lung Fluid Balance
Dolly Mehta and Asrar B. Malik

Effects of Aging on Vascular Function-Human to Cell
Judy Mueller-Delp

Non-Invasive Body Composition Analysis in Small Animals
Tim R. Nagy and John R. Speakman

Redox Control of Skeletal Muscle Adaptation to Exercise and Inactivity
Scott Powers and Mike Reid

Collaboration: The Cornerstone of Science, Learning and Change
Whitney M. Schlegel

Sympathetic-Adrenergic and Baroreflex Function With Aging
Douglas R. Seals

Planning a Successful Postdoctoral Experience: A Proactive Approach
Deborah A. Scheuer

The TRP Superfamily of Cation Channels: Emerging Roles in Epithelial Physiology
Peter R. Smith

The Maternal-Fetal Dialogue
Michael Soares

Stem Cells of the Developing and Adult Lung
Claudette M. St. Croix and Barry R. Stripp

Cardiac Fibrosis-Good, Bad or Dead
Suresh C. Tyagi

Metalloproteinase and Diabetes
Suresh C. Tyagi

Interaction of Physiological Mechanisms in Control of Muscle Glucose Uptake
David H. Wasserman and Maureen Charron

Physiology of the Intrinsic Lymph Pump
David Zawieja and Anatoliy A. Gashev

Biophysical Studies of Membrane Trafficking
Dr. Zenisek

Section-Sponsored Featured Topics

Graduate Highlights in Respiration Physiology
Jahar Bhattacharya
Capacitative Calcium Entry
Pam Bounelis and Richard B. Marchase
Non-traditional Arachidonic Acid Signaling in Arteries
Robert Bryan
Mechanisms of Vascular Dysfunction in Insulin Resistance
Dave Busija
Wigger's Award Featured Topic: Load Regulation of Cardiac Properties
George Cooper, IV
Oxygen Sensing by Neural Tissues
Jay B. Dean
Dysautonomics: Clinical Disorders of the Autonomic Nervous System
D. Goldstein
Novel Concepts in the Logical Regulation of Vascular Tone
Travis Hein
AstraZeneca Young Investigator Session: Renal Hemodynamics
John Imig
Stress, Mood and Autonomic Function
Alan Kim Johnson and Angela J. Grippo
Control of Muscle Blood Flow During Exercise
Michael Joyner and Larry Sinoway
Insect Models of Epithelial Tissue Transport
Karl Karnaky
Specturm of Ion Channels in Alveloar Epithelial Cells: Implications in Alveolar Fluid Balance and Cell Volume Regulation
Kwang-Jin Kim
Membrane Traffic in Epithelial Cells
Kevin L. Kirk
Adaptation to Exercise Stresses: Mechanisms of Protection
Timothy Koh
Cell-Cell Contacts in Regulating Lung Function
Michael Koval
Molecular Physiology of Oxygen Homeostasis: Oxygen-Dependent Hydroxylation
Sukhamay Lahiri
Vacuolar Type H + - ATPases: Structure and Cellular Function in Mammalian Cells
Raul Martinez-Zaguilan
The Respiratory-Sympathetic Dance: Who Leads and Who Follows
Steve Mifflin
Cardiovascular and Respiratory Constraints on Exercise
Suzanne Munns
Epithelial Na and K Channels
Scott M. O'Grady and James D. Stockand
Berne Lecture Featured Topic: Molecular Control of Smooth Muscle Differentiation in Vascular Development and Disease
Gary Owens
Rho and Rho Associate Kinase Pathways
Richard J. Paul
Inflammatory Mediators and Cardio-Renal Pathophysiology
Jennifer Pollock
Regulation of Intestinal Ion and Vitamin Transporters During Development
Mrinalini C. Rao
Muscle Fatigue
Jean-Marc Renaud
Vascular Communication and Coordinated Blood Distribution
Richard Rivers
Hypertensive Mechanisms: Insights from Genetic Models
Richard Roman
Writing Higher Level Cognitive Questions in Physiology
Rod Seeley
Beneficial and Deleterious Effects of Estrogen on the Cardiovascular System
John Stallone
Ghrelin: Its Role in Energy Balance
Gary Truett
Abbott Award Featured Topic
TBA
Comparative Regulation of Renal and Intestinal Phosphorus Processing and Transport: From Molecules to Environment
Andreas Werner
Starling Lecture Featured Topic: Nitric Oxide: Oxygen Radicals and Lipid Mediators in the Control of Arterial Pressure
Christopher Wilcox
Excitation-Contraction Coupling in Health and Disease
Jay Williams

Workshops and Special Symposia

Guyton Memorial—Arthur C. Guyton: The Man and His Science
Joey P. Granger
High Content Biology: Multiplexing in Cell Physiology
Chahrzad Montrose-Rafizadeh
IACUC 101 for Scientists
John Stallone
Microarrays, Proteomics and Mass Spectrometry
Susan Olds
Making Science News: A Journalists Roundtable
Andrea Gwosdow
Peer-Review and Publication in the APS Journals
Dale Benos
Refresher Course on Cellular Homeostatis
Michael F. Romero
The Promised Land or Fatal Attraction? A Practical Overview of the Present and Future of Genetically Engineered Mice
Donald E. Kohan
Biological Applications of Nanotechnology
Jahar Bhattacharya
The Heme-Heme Oxygenase-Carbon Monoxide System and the Control of Cardiovascular and Renal Function
Alberto Nasjletti and Nader Abraham
The Mechanisms and Impact of Fetal Physiological Programming
Jeffrey Schwartz
Intracellular Trafficking of Membrane Proteins in Renal Epithelia
Paul A. Welling and Michael Caplan

Guest Society Sessions

American Federation for Medical Rsearch (AFMR)

Nutrient Sensing and the Metabolic Syndrome of Aging
Nir Barzilai
Strategies for the Prevention of Alcohol-Mediated Tissue Injury
Michael Hart
The State of the Progenitor: A Comprehensive Stem Cell Research Update
Meredith Hawkins
Mechanisms of Hyperglycemia in Diabetes II
Jerry Rabzuik
Cold Ischemic Injury of Organs for Transplantation: Devastation, Mechanisms and Prevention
Abdulla Salahudeen

Association of Latin American Physiuologiucal Societies (ALACF)

Neuroendocrine Modulation and Adaptative Responses to Stress
Rosalinda Guevara-Guzman

Biomedical Engineering Society (BMES)

Remodeling of Adult Tissues: Beneficial Adaptation, Disease and the Engineering of Reparative Medicine
Andrew McCulloch and Rakesh Jain
Assembly of Tissues: Coordinating Cell Interactions in Large, Multicellular Systems
Thomas C. Skalak and Robert Tranquillo
Self-Assembly and Remodeling in Complex Living Systems: Co-Regulation of Biological Function by Mechanical and Biochemical Cues
Viola Vogel and Brian Helmke

The Microcirculatory Society (MCS)

Microcirculatory Society Presidential Symposium: Molecular Genetics Approaches to Microvascular Research
Geert W. Schmid-Schonbein
Microcirculatory Society Landis Award Lecture
TBA
Microcirculatory Society Young Investigator Session
Donald G. Welsh

Society for Experimental Biology and Medicine (SEBM)

Physiological Cross-Talk: Non-hemostatic *Physiological Effects of Hemostatis-related Components*
Bradford S. Schwartz

New Regular Members

*transferred from Student Membership

Amir Askari
Medical College of Ohio
Keith Baar
Univ. of Michigan
Molly Ann Bogue
The Jackson Laboratory, ME
William C. Byrnes
Univ. of Colorado, Boulder
Tim Cable
Liverpool John Moores Univ., UK
Joao Carlos Callera
Paulista St. Univ., Brazil
Helen Carter
Univ. of Brighton, UK
Zhiping Cao
Portland VA Med. Ctr., OR
Deborah L. Carlson
Univ. of Texas Southwestern Med. Ctr.
Gang Cheng
Med. Univ. of South Carolina
Alan R. Collins
Univ. of California, Los Angeles
Sergio L. Cravo
Univ. of Federal De Sao Paulo, Brazil
Zong Jie Cui
Beijing Normal Univ.
Daniel Cuthbertson
Ninewells Univ. Hosp., Scotland
Linda Ruble Davrath*
Tel Aviv University, Israel
Jack Carl Debes*
John Fiske Brown Assoc., CA
Jason P. Eiserich
Univ. of California, Davis
Marlies Elger
Medical Schl. Hannover, Germany
Ervin George Erdos
Univ. of Illinois
Martin Farias III *
Univ. of Washington Med. Ctr.
Janet Fawcett*
Carl T. Hayden VA Med Ctr., AZ
Damien Freyssenet
Laboratoire De Physiologie, France
Ulla G. Friis
Univ. of Southern Denmark
Judith R. Gibber
Columbia Univ., NY
David F. Goldspink
Liverpool John Moores Univ., UK
Richard L. Goodwin
Univ. of South Carolina
Patricia Lee Gordon*
San Francisco VA Med. Ctr., CA
Aidar R. Gosmanov
Univ. of Tennessee
Anandarup Gupta
Univ. of Maryland
Robert W. Hadley
Univ. of Kentucky
William D. Hardie
Children's Hosp. Med. Ctr., OH
Mark J. Haykowsky*
Univ. of Alberta, Canada
Kenneth A. Hoekstra*
Univ. of British Columbia, Vancouver
Keith E. Jackson
Tulane Univ,. LA
Hartmut W. Jaeschke
Univ. of Arizona
William E. Johnson*
Northern Arizona Univ.
Casey A. Kindig*
Univ. of California, San Diego
Keri Anne Kles*
Univ. of Chicago, IL
Heather N. Koopman
Woods Hole Occeanographic Inst., MA
Kurt Eric Kwast*
Univ. of Illinois
Dexter LeMarvin Lee*
Medical College of Georgia
Chenwei Li*
Univ. of Michigan
Jianhua Li
Pennsylvania State Univ.
Badgang Liu
Univ. of Arkansas
Ning Lu
Kansas State Univ.
Christopher John Madden*
Oregon Health & Sci Univ.
Jim K. Mansoor*
Univ. of the Pacific, Stockton, CA
Michael R. McGuigan
Univ. of Wisconsin, La Crosse
James G. McGeown
Queen's Univ., Belfast
Sangeeta V. Mehendale*
Univ. of Chicago, IL
Edward L. Melanson
Univ. of Colorado
Morten N. Melsom
The Glittre Clinic, Norway
Eric Monnet*
Colorado State Univ.
Ryan G. Morris*
National Inst. of Health, MD
Gillian Muir*
Univ. of Saskatchewan, Canada
Allen Charles Myers
John Hopkins Univ., MD
Farzan Nadim
Rutgers Univ., NJ
Shawn D. Pearcy
Wayne State College, NE
Jian-Ming Pei
Fourth Military Med. Univ., China
Ji-Bin Peng
Univ. of Alabama, Birmingham
Steven H. Platts*
Univ. of Virginia
Janos Porszasz
UCLA, Torrance
Elmer M. Price
Univ. of Missouri, Columbia
Rhonda D. Prisby
Texas A&M Univ.
Gary S. Russo
Emory Univ., GA
Elizabeth M.L. Rust
Univ. of Michigan
Michael C. Scally
Private Practice, TX
Peter A. Schneible
St. Bonaventuve Univ., NY
R. Andrew Shanely*
Univ. of Missouri, Columbia
Dong Min Shin
Yonsei Univ., Korea
Angela C. Shore
Inst. of Biomed & Clin. Sci., UK
Kevin R. Short
Mayo Clinic, MN
Jonathan Z. Simon
Univ. of Maryland
Hagir B. Suliman
Duke Univ., NC
Baskaran Thyagarajan
Natl. Inst. Pharm. Edu. & Res., India
Ruslan L. Tiniakov
Univ. of Illinois, Chicago
Elangovan Vellaichamy
Tulane Univ., LA
Timothy Gordon West*
Imperial Coll. Science, UK
James S. Williams*
Texas Tech Univ.
Monte S. Willis
Univ. of Texas Southwestern Med. Ctr.
WeiLing Xu
Cleveland Clinic Foundation, OH

New Student Members

Tanja Andric
Univ. of Illinois, Chicago
Bruce Wayne Bailey
Univ. of Kansas
Marcela Barajas
California State Univ., Northridge
Tracy Baynard
Syracuse Univ., NY
Evan Spencer Berk
Columbia Univ., NY
Steven Alfred Bloomer
Univ. of Iowa
Clarence Eric Butz
Univ. of California, Berkeley
Dale Wilson Chapman
Edith Cowan Univ., Australia
Jonathan Ronald Coldwell
Royal Adelaide Hosp., Australia
Andrew Scott Cole
Ball State Univ., IN
Cecilia Edna Mareze Costa
State Univ. of Maringa, Brazil
Kalyani Manohar Damle
Abbsameb Gabware College, India
Juliana I.F. De Gobbi
Univ. of Iowa
Ava Caudill Dykes
Marshall Univ., WV
Linda Anne Ferreira
Griffith Univ., Australia
Robert Lee Franco
Univ. of Southern Mississippi
Jessica Rai Gee
Univ. of Oregon
Gary Gianetti
Univ. of Connecticut
Melissa Caroline Grimm
California State Univ., Sacramento
Wind Lee Henderson
Florida State Univ.
Chin-ju Hsiao
Western Michigan Univ.
Jing Yu Jin
Jeonbug Nat'l Univ., Korea
Justin Wade Johnson
Winston-Salem State Univ., NC
Kehuhoumana H. Ka'ahea
Mira Costa College, CA
Johanna A. Kolodziejski
Indiana Univ.
James D. LeCheminant
Univ. of Kansas
Li Li
Georgia State Univ.
Nicole Corinne Lockhart
Univ. of Michigan
Michelle Ellen Lomax
Brunel Univ., Middlesex, England
J. Darcy MacLellan
Univ. of Ottawa, Canada
Alberto Weigl Mares
Univ. of Texas, San Antonio
Selina McHarg
Peninsula Med Sch., UK
George Megas
Univ. of Athens, Greece
Andrew Charles Melton
Univ. of California, LA
Larry Edwin Miller
Virginia Tech.
Lisa Diane Moffatt
California Polytechnic, Pomona
Jennifer Marie Monical
Univ. of Utah
Ganni Parise
McMaster Univ., Canada
Sideny Baknade Peres
Univ. of San Paulo, Brazil
Qining Qin
Univ. of South Alabama
Katharine Lynn Rowley
Mayo Clinic, MN
Xia Shen
Univ. of Louisville, KY
Prajakta A. Sonalker
Univ. of Pittsburgh, PA
Luke Spence
Univ. of Queensland, Australia
Jason L. Talanian
CA State Univ., Sacramento
Daniel Graf Temple
Univ. of Brighton, United Kingdom
Simon Tung Leung Ting
Teagase, Grange Res. Ctr., Ireland
Jason Daniel Vescovi
Univ. of Connecticut
Denis Villemagne
ESBS, Illkirch, France
Jacqueline E. Vioilance
Univ. of West Indies, Jamaica
Kimberly Dawn Whitish
Univ. of Montana
Matthew Owen Widzer
Univ. of Texas, Austin
Kenneth Mark Wooden
Arizona State Univ.
Xianke Zeng
Univ. of Louisville, KY
Jennifer J. Zwetsloot
East Carolina Univ., NC
Kevin A. Zwetsloot
East Carolina Univ., NC

New Affiliate Member

George F. Spiegel
Mid Plains Community College, NE

Moving?

If you have moved or changed your phone, fax or Email address, please notify the APS Membership Office at 301-634-7171 or Fax to 301-634-7241. Your membership information can also be changed by visiting the Members Only portion of the APS Website at http://www.the-aps.org.

Iowa Physiological Society Holds Annual Meeting

The eighth annual meeting of the Iowa Physiological Society (IPS) was held on Monday, June, 2, 2003 at the Medical Education Center at Des Moines University in Des Moines, IA. Approximately 20 registrants participated in this one-day meeting and these individuals included faculty, research assistants, postdoctoral fellows, graduate students and one undergraduate student. Gerald DiBona, past President of APS, was also in attendance. The morning session consisted of oral presentations by each of the ten poster presenters. Although the topics covered by each poster varied considerably, most were directly or indirectly related to cardiovascular physiology.

The poster presentations were followed by a buffet lunch and a brief Planning Committee Meeting. Issues that were discussed included whether the annual IPS meeting should be held in conjunction with the Annual Iowa Academy of Sciences meeting, whether next year's annual IPS meeting should be held in Iowa City at the University of Iowa to attract a larger audience, whether the Nebraska Physiological Society should be invited to meet jointly with IPS on a yearly or bi-year basis, and whether physiologists from South Dakota and Missouri should be encouraged to attend and participate in the annual IPS meeting. These issues will be further discussed by the IPS Board and decisions will be announced to the membership. Nominations were also sought for IPS President-Elect and it was decided to keep the nomination period open until an appropriate individual was nominated and approved.

The major presentation in the afternoon session was a seminar entitled: "Reactive Oxygen Species in the Autonomic Nervous System: Novel Mediators of Cardiovascular Regulation and Dysregulation." This research seminar was presented by Mark Chapleau, Associate Professor, Department of Internal Medicine, University of Iowa, Veterans Affairs Medical Center, Iowa City, IA. After Chapleau answered specific questions, participants continued to view the individual posters that were displayed throughout the large conference room. ❖

Thomas J. Schmidt
Past President
Iowa Physiological Society

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Nebraska Physiological Society Holds Annual Meeting

The sixth annual meeting of the Nebraska Physiological Society (NPS) was held on Friday, May 23, in the Animal Science Building on the East Campus of the University of Nebraska at Lincoln (UNL). A total of 82 individuals registered for the meeting, and 35 research posters were presented. The meeting began at 9:00 am with a welcome and introductory remarks from Shyamal K. Roy, NPS President and Professor of Physiology and Biophysics at the University of Nebraska Medical Center (UNMC), and John Davis, Director of the Olson Center for Women's Health, Department of Obstetrics and Gynecology, UNMC. Randall S. Prather, Distinguished Professor of Reproductive Biotechnology at the University of Missouri at Columbia, was the APS Lecturer. The title of Prather's talk was "Specific Genetic Modification to Swine: Application to Medicine and Agriculture." His talk highlighted advances in transgenic technologies and their potential application to xeno transplantation.

Four student presentations followed the APS lecturer. These student presentations were selected based on the quality of the abstracts submitted with the posters. While all of the student presentations were excellent, the $250 award was presented to postdoctoral student Peixin Yang of the Department of Physiology and Biophysics, UNMC, for his work "Mechanisms of TGFß-induced DNA synthesis in hamster preantral granulosa cells." Other students selected to give oral presentations were postdoctoral student Peilin Wei, Department of Physiology and Biophysics, UNMC, for his work "Role of store-operated calcium channels in the mesangial proliferation during the early hyperfiltration stage of type 2 diabetes"; predoctoral student Yu Wang, Department of Physiology and Biophysics, UNMC, for her work "Differential baroreflex responses to nNOS gene transfer into NTS and RVLM in rats with chronic heart failure"; and graduate student Yi-Ming Zhang, Department of Physiology and Biophysics, UNMC, for her work "Down regulation of FSHR mRNA levels in the hamster ovary: Effect of FSH."

After the student presentations, Michael J. Davis, Professor of Medical Physiology at Texas A&M University College of Medicine, gave a presentation about web-based teaching at medical schools. Davis demonstrated the capabilities of web-based tools in areas such as the posting of announcements, class notes, and grades, discussion rooms, practice exams, and computer-simulated laboratory activities. The morning session concluded with an update on the state of the American Physiological Society presented by Irving H. Zucker, past president of NPS and Professor and Chair of the Department of Physiology and Biophysics, UNMC. Zucker highlighted the success of APS journals, the continuing project to get all back issues of APS journals online, and work done by the American Association of Medical Colleges.

The NPS business meeting followed lunch. Janet E. Steele, NPS Secretary-Treasurer and Associate Professor of Biology at the University of Nebraska at Kearney (UNK), presented the current financial status of the NPS. She noted that sponsor contributions were increased over last year and thanked this year's sponsors for their support. Sponsors included the APS, the Department of Physiology and Biophysics, UNMC; the Dean's Office of the College of Medicine, UNMC; the Dean's Office of the School of Medicine, Creighton University; the Olson Center for Women's Health, UNMC; Nebraska Health Systems; M.J. Research, Inc.; North Central Instruments; D.A.I. Scientific Equipment; and Fischer Scientific. Steele then updated the members on the status of the Nebraska Local Outreach Team (LOT), which is a branch of the APS *Frontiers in Physiology* program. The LOT has three hands-on workshops for middle and high school science teachers scheduled, June 2 and June 9 at UNK and then October 23 as a part of the annual meeting of the Nebraska Association of Teachers of Science in Fremont. NPS President Roy then discussed the possibility of future meetings with the Iowa Physiological Society and called for members to submit their ballots for the election of the next President-Elect, Secretary-Treasurer, and Councillor. Roy thanked the membership for their support during his presidency and introduced NPS President-Elect Dale Bergren, Professor of Biomedical Sciences, Creighton University School of Medicine. New officers for the coming year include Andrea S. Cupp, Assistant Professor of Animal Science, UNL, President-Elect; Harold D. Schultz, Professor of Physiology and Biophysics, UNMC, Secretary-Treasurer; and Brett R. White, Assistant Professor of Animal Science, UNL, Councillor.

Following the business meeting participants visited the sponsors' displays and viewed the research posters. Departments and institutions represented in the poster session included the Department of Physiology and Biophysics, UNMC; the Olson Center for Women's Health, Department of Obstetrics and Gynecology, UNMC; the USDA Meat Animal Research Center, Clay Center, NE; the Department of Animal Science, UNL; the Department of Biochemistry, UNL; Boys Town National Research Hospital, Omaha, NE; and the Department of Pharmacology, Creighton University, Omaha, NE. The meeting concluded at 4:00 pm. ❖

Janet Steele
Secretary/Treasurer
Nebrasaka Physiological Society

Ohio Physiological Society Holds Annual Meeting

The 17th annual meeting of the Ohio Physiological Society (OPS) was held November 15, 2002 at the Ralph Regula Conference Center at the Northeastern Ohio Universities College of Medicine (NEOUCOM), Rootstown, OH. The theme of the meeting was "Cardiopulmonary Physiology—ß-adrenoceptors—Development and Disease." The initial announcement of the meeting was done via Email. Subsequently, a brochure describing the meeting and application forms were sent by mail.

A total of 100 registered participants (including the invited speaker, researchers, and graduate and undergraduate students) attended the meeting. The attendees came from many institutions around the state of Ohio; NEOUCOM, Wright State University, Bowling Green State University, Ohio University, University of Akron, Akron General Medical Center, Ohio University College of Osteopathic Medicine, University of Cincinnati, Case Western Reserve University, University of Dayton, Cleveland Clinic, and Kent State University. In addition, the meeting was attended by undergraduate students and faculty from Walsh University, Hiram College, and Westminster College.

The meeting was opened by a special welcome address by NEOUCOM's new President and Dean Lois M. Nora. The OPS president, Hans G. Folkesson, Associate Professor of Physiology at NEOUCOM, then welcomed the audience and introduced the APS Featured Speaker and Keynote Speaker David H. Ingbar, from the University of Minnesota, Minneapolis, MN. Ingbar presented a fascinating lecture and summary on the regulation of alveolar fluid absorption. The remaining presentations were focused on the role of ß-adrenoceptors in regulating alveolar fluid absorption and cardiovascular functions. The presentations were designed to appeal to the large undergraduate and graduate student presence in the audience.

Following lunch in the Conference Center, a poster session with many lively discussions was held in the atrium. Concomitant with the poster session, there was a vendor display of scientific equipment and laboratory supply solutions organized by VWR Biomarke Program and Beckman Coulter. During the poster session, the School of Biomedical Sciences at Kent State University and NEOUCOM provided information to the undergraduate students about graduate studies at the School of Biomedical Sciences.

A business meeting was held at the end of the meeting in which the locations of the next two meeting were announced, Case Western Reserve University (2003) and University of Cincinnati (2004). The President-elect is Nanduri R. Prabhakar, Case Western Reserve University. The creation of the Peter K. Lauf Ohio Physiological Society Student Award was also announced at the business meeting. The award will be given to a promising physiology graduate student to enhance his/her education by permitting the student to attend a major national/international physiology meeting, such as the Experimental Biology meeting.

The 17th annual meeting of the OPS would not have been possible without the generous support from the NEOUCOM Division of Basic Medical Science and Department of Physiology, the Graduate Program School of Biomedical Sciences, Kent State University, VWR Biomarke Program, Beckman Coulter, and the APS. ❖

Hans G. Folkesson
President

APS Awards

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 6
Caroline tum Suden/Francis A. Hellebrandt Professional Opportunity Awards	November 6

2002 Impact Factors Are Published by Thomson/ISI

Thomson/ISI has released its 2002 Science Edition of the Journal Citation Reports, which gives journal impact factors and rankings of 5,831 science journals. The 2002 impact factors of the journals of the APS, along with a comparison of the past two years, are given in the table below. The table also shows the rank of APS journals in the physiology category, and each journal's rank in its related field, as well as each journal's cited half-life.

Table 1. 2002 ISI Impact Factors

Journal	2002	2001	2000	2002 Cited Half-Life	2002 Rank, Physiology (out of 73)	2002 Rank, Related Field	Related Field
PRV	26.532	30.061	27.677	6.9	1		
AJP-Renal	5.044	4.523	4.129	6.1	5	2/47	Urol & Nephr
Phys Gen	4.667	3.352	1.353	2.1	7	33/153 51/266	Cell Bio, Biochem & Mol Biol
AJP-Cell	3.936	3.896	4.086	5.8	9	43/153	Cell Biol
AJP-Lung	3.900	3.658	3.303	4.6	11	4/32	Respiratory
JN	3.743	3.517	3.855	7.4	12	39/197	Neuroscience
AJP-Endo	3.620	3.324	3.183	6.4	13	21/88	Endo & Met
AJP-Heart	3.369	3.232	3.243	6.1	14	8/66	Cardio
AJP-GI	3.346	3.660	3.115	5.5	15	8/45	Gastro & Hep
AJP-Regu	3.156	2.437	2.765	5.7	19		
J. Appl. Physiol.	2.720	2.581	2.297	>10	21	1/69	Sport Science
NIPS	2.715	1.817	2.060	4.7	22		
Advances	0.744	0.186	0.037		64		

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APS Recognizes Outstanding High School Research Efforts at the 54th Annual International Science and Engineering Fair

The 54th Annual International Science and Engineering Fair (ISEF) was held in Cleveland, OH, on May 11-17, 2003. Sponsored by Intel, this year's ISEF featured over 1,200 outstanding high school science students from the US and 38 other countries. Students competed individually or as teams in 14 different categories, including behavioral and social sciences, biochemistry, computer science, engineering, gerontology, medicine and health, and zoology. In addition to the Grand Awards presented by the Intel Foundation and five other organizations, Special Awards were given by 93 scientific, professional, industrial, educational, and governmental organizations. Special Awards ranged from scholarships and tuition grants to summer internships, scientific field trips and equipment grants. APS presented Special Awards in the form of cash prizes and student memberships to select finalists with the best projects in the physiological sciences, including cellular physiology, animal physiology, and neurophysiology.

The judging team, led by Bill Jackson from the Department of Biological Sciences at Western Michigan University, included APS members Michael Romero and Ulrich Hopfer from the Department of Physiology and Biophysics at Case Western Reserve University in Cleveland, OH.

The APS First Place Award of $1,000 went to Irene Yuan Sun, a senior at Ben Davis High School in Indianapolis, IN. Sun's project, "Gene expression analysis of synovial cells in response to impulsive shock" also won a Second Place Grand Prize Award in the category of Medicine and Health. Daniel Jacob Sachs won the APS Second Place Award of $500 with his project, "Simvastatin activation of ryanodine receptor-mediated calcium channels may promote myolysis." Sachs is a senior at John Jay High School in Katonah, NY. There was a tie for the APS Third Place Award between Anila Madiraju, a senior at Marianopolis College in Montreal, Quebec, Canada, and Truc Thanh Pham, a senior at Suncoast High School in Riviera Beach, FL. Both students will receive $500 from the APS. Madiraju also was awarded an Intel Young Scientist Scholarship, and her project, "Silencing Cancer with RNA" was selected as Best of Category in Medicine and Health. Pham's project, "Effect of age on B-cell responsiveness to stromal cell-derived factor-1 (SDF-1) and B-lymphocyte chemoattractant (BLC)" was also awarded a Fourth Place Grand Prize.

In addition to the four award winners, the APS recognized eight other students in the form of a one-year student membership to the APS and subscriptions to *The Physiologist* and *News in Physiological Sciences*. These outstanding science students were: Tania Sharlin Sierra, a senior at Suncoast High School, Riviera Beach,

Bill Jackson presents APS Special Awards to (left to right) Irene Sun, Truc Thanh Pham, Daniel Sachs, and Anila Madiraju.

The APS judging team (left to right): Michael Romero, Ulrich Hopfer and Bill Jackson.

FL (An electrical model of the transmembrane potential of axons in Loligo Pealei); Anand Athiviraham, a junior at Saint Thomas High School, Pte Claire, Quebec, Canada (INGAP peptide: New therapeutic approach for diabetes); Christopher Yu, a senior from Caddo Parish Magnet High School in Shreveport, LA (A role for green tea polyphenols in the inhibition of hepatocyte growth factor mediated prostate cancer progression); Johni Beth Gibbs, a junior at Harmony Grove High School in Benton, AR (The effects of over-the-counter drugs on the heart rate of Daphnia); Chelsea Ray Keeney, a senior at the School of the Osage in Kaiser, MO (Determining a correlation between salivary cortisol concentrations, socio-economic classes and at-risk school-aged children); Jill Shizuko Harunaga, a senior at Kamehameha Secondary School, Honolulu, HI (Damnacanthal and the cytoskeleton: Noni anthraquinone normalizes the cancer cell phenotype); Yibo (Ethan) Yang, a senior at Palo Alto High School in Palo Alto, CA (Different caspases mediate age-related apoptosis in neurons with astrocytes); and John Louis Gehrig, a senior at Caddo Parish Magnet School in Shreveport, LA (The role of leukocytes in the exacerbation of ischemia-reperfusion injury in hypercholesterolemic mice).

Next year's Intel ISEF will be held in Portland, OR, May 9-15, 2004. The one-day judging for APS Special Awards is always an interesting, rewarding, and enlightening experience for APS members who participate. For those in the Portland area, please consider joining the APS judging team for the 2004 Intel ISEF. If interested, please contact Marsha Matyas in the APS Education Office (mmatyas@the-aps.org). ❖

Bill Jackson
APS Education Committee

2003 Undergraduate Summer Research Fellows and Hosts Announced

The American Physiological Society's Undergraduate Summer Research Fellowships program is sponsored by the APS Career Opportunities in Physiology Committee and funded by the APS Council. Up to 12 fellowships are funded each summer. The program was established in 2000, making this the fourth year of the program.

These fellowships are to support full-time undergraduate students to work in the laboratory of an established investigator. The intent of this program is to excite and encourage students to pursue a career as a basic research scientist. Faculty sponsors/advisors must be active members of the APS in good standing but do not have to be US residents. Past awardees include students from Canada and South America.

These Fellowships provide a $2,000 summer stipend to the student (10 weeks of support), a $500 grant to the faculty sponsor/advisor, and up to $800 to the student so that he/she may attend and present their data at the APS annual meeting (Experimental Biology) or an APS fall Conference.

This year 57 applicants vied for the 12 fellowships. ❖

2003 Undergraduate Summer Research Fellows and Hosts

David E. W. Arnolds Williams College, Williamstown, MA	Laurie J. Goodyear Harvard Medical School, Boston, MA
Matthew W. Buelow University of Wisconsin, La Cross, WI	Julian H. Lombard Medical College of Wisconsin, Milwaukee, WI
Carla S. Cerqueira New Jersey Institute of Technology, Harrison, NJ	Ronaldo P. Ferraris New Jersey Medical School, Newark, NJ
Tammy P. Chan University of North Texas, Denton, TX	Warren W. Burggren University of North Texas, Denton, TX
Jennifer M. DiPenta Acadia University, Wolfville, N.S., Canada	René J.L. Murphy, Julia Green-Johnson Acadia University, Wolfville, N.S., Canada
Nathalie L. Dube University of New England, Biddeford, ME	Amy Davidoff, and Edward Bilsky University of New England, Biddeford, ME
Anne M. Gaynor Juniata College, Huntingdon, PA	Gregory L. Stahl Brigham & Women's Hospital, Boston, MA
Pablo I. Gonzalez Trinity University, San Antonio, TX	Jonathan M. King Trinity University, San Antonio, TX
Jill S. Joehl University of Notre Dame, Notre Dame, IN	Marshall H. Montrose Indiana University, Indianapolis, IN
Aubrey K. Peiffer Colorado State University, Ft. Collins, CO	Gregory L. Florant Colorado State University, Ft. Collins, CO
Lindsay A. Strader Kansas State University, Manhattan, KS	Bruce D. Schultz Kansas State University, Manhattan, KS
Joni A. Wipf University of South Dakota, Vermillion, SD	Evelyn H. Schlenker University of South Dakota, Vermillion, SD

Summer Research Teachers and Research Hosts Honored at Luncheon

As the culmination of their 12-month fellowship, the 2002 *Frontiers in Physiology* and *Explorations in Biomedicine* Summer Research Teachers (SRTs) attended Experimental Biology 2003 to learn about the latest science research findings, meet with physiologists, attend workshops and tour the posters and exhibits. Six of the 20 Research Teachers also presented posters about their summer research projects along with their research hosts and lab teams.

The 2002 SRTs and their APS member Research Hosts were honored at a luncheon during Experimental Biology 2003. Teachers were presented certificates of achievement, and their Research Hosts were presented certificates of appreciation for their participation in the 12-month fellowship. Robert Carroll, Chair of the Education Committee, served as the master of ceremonies and President Barbara Horwitz and Executive Director Martin Frank offered their congratulations while presenting the certificates to the teachers and their hosts.

The *Frontiers in Physiology* and *Explorations in Biomedicine* programs are 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 program offers teachers nationwide a full-time, hands-on laboratory experience for seven to eight weeks at APS members' research labs. Teachers also attend a one-week workshop 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.

Frontiers in Physiology 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. ❖

A few of the 2002 Summer Research Teachers and APS Education Office staff celebrate the successful completion of the year-long fellowship. Pictured are Education Officer Marsha Matyas, Diana Hill, Lisa Bidelspach, Louise Hartwell, Shelley Epperson, Leigh Foy, Sheree Watson, and Kathleen Kelly, K-12 Programs Coordinator.

Marsha Matyas, Barbara Horwitz and Martin Frank address the SRTs at the completion of the fellowship.

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San Diego Science Teachers and Students Participate in Physiology Workshop at Experimental Biology 2003

San Diego area high school teachers and students participated in the Physiology for Life Science Teachers and Students Workshop on Monday, April 14, at the San Diego Marriott Hotel & Marina. The workshop included a keynote presentation, a careers panel discussion, lunch and hands-on physiology workshops for the teachers and students. During this jam-packed day, participants learned about current research findings, explored hands-on, inquiry based lab activities, learned about education and careers in biomedicine, met with APS researchers, and toured the EB posters and exhibits. Education Committee member, Walter Ward, University of Texas Health Sciences Center, coordinated the day's events and Robert Carroll, Eastern Carolina University, Chair of the Education Committee, served as the master of ceremonies.

The keynote speaker, John B. West, University of California, San Diego, took the students and teachers to dizzying heights with his presentation, "High Living: Physiology Studies on the Summit of Mt. Everest." With vivid slides and fascinating stories, West detailed his 1981 American Medical Research Expedition to Everest to conduct the first-ever physiological measurements on the summit.

West then joined the Careers in Physiology Panel Discussion that was moderated by Margaret Shain, a middle school science teacher from New Albany, IN, and *Frontiers in Physiology* Curriculum Development fellow. The panel included Martin Farias, a Senior Fellow at the University of Washington, and recent graduate student, Ollie Kelly from Emory University, GA. The panelists shared their different experiences and perspectives on careers in physiology with the audience. As the three physiologists discussed academia, research and careers in biomedicine, students and teachers learned about the excitement of being a researcher, the steps it takes to become a research scientist and the variety of ways that an interest in science can spark a career path.

After the panel discussion, the students and teachers met with the APS members who volunteered to take them on 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." As in years past, many students commented that this was their favorite part of the day.

After lunch, the teachers participated in a Teacher In-service Workshop led by 2002 *Frontiers in Physiology* and *Explorations in Biomedicine* Research Teachers and Curriculum Development fellows. Diana Hill, Putnam City High School, Oklahoma City, OK and Ada Harvey, Flagler Palm Coast High School, Bunnell, FL, led "Junkyard Digestion," a hands-on exploration of the digestion system that included building a working model of the digestive tract. Lisa Bidelspach, Clear Creek High School, League City, TX, Charles Geach, El Paso ISD, El Paso, TX, and Sheree Watson, Great Falls High School, Great Falls, MT, presented "Touch This!" activities that explored the world of neuroscience and mechanoreceptors.

A team of physiologists including George Tempel, University of Texas Southwestern Medical Center, Barbara Goodman, University of South Dakota, and Rayna Gonzales, University of California, Irvine, led students in selected activities from the "Physiology of Fitness" learning cycle unit. Through these hands-on, inquiry-based experiments, students explored factors that affect blood flow and pressure.

The *Frontiers in Physiology* and *Explorations in Biomedicine* programs are designed to create ongoing working relationships between research

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John West captivates students and teachers with his keynote presentation about physiology experiments at the summit of Mt. Everest.

Ollie Kelly and Martin Farias share their perspectives during a panel discussion on careers in physiology.

(continued from page 165)

scientists and middle/high school teachers via research and inservice experiences and electronic communications. Additionally, these programs promote 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 researchers.

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 APS 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. ❖

During the in-service workshop on mechanoreceptors, San Diego-area teachers and 2002 Summer Research teachers try out the two-point discrimination test.

During the in-service workshop on mechanoreceptors, San Diego-area teachers and 2002 Summer Research teachers try out the two-point discrimination test.

Physiology in Perspective
Walter B. Cannon Memorial Lecture Award

The Cannon Memorial Lecture honors Walter B. Cannon, President of the Society from 1913-1916, and is presented annually by a distinguished physiologic scientist at the spring meeting. The lecture, sponsored by the Grass Foundation, is selected by the APS President with the consent of Council.

More information on the award and nomination procedures are available at http://www.the-aps.org. Nominations must be submitted by October 1.

APS Archive of Teaching Resources

The APS Archive of Teaching Resources (http://www.apsarchive.org) continues to grow with the recruitment of a variety of new learning objects from educators all over the country. To date, there are over 250 items catalogued in the Archive from various sources.

However, more material is still needed. Please consider submitting material that you have developed to use to make your teaching more effective. These can be

• lecture or course outlines or PowerPoint slides from a lecture that is particularly effective with your students;
• problems or cases you've written for your classes;
• diagram(s) that you've created to illustrate a specific pathway or process that seems to clarify it for your students;
• simulations or videos you have developed;
• web sites you have discovered that have valuable information for your teaching;
• teaching tools/materials that you are developing that would benefit from feedback from your colleagues;
• anything educationally related to physiology, pathophysiology, or clinical physiology.

By submitting learning objects that you have developed, you can help your colleagues in their efforts to find the best tools for introducing their students to the exciting discipline of physiology.

Here are some new items in the Archive. Take a moment and check out those that are most relevant to your teaching. Don't forget that you can comment on any of these items through the comment section attached to each item, which can be found on its Fact Sheet.

• Renal Lecture Problems (PowerPoint)
Rob Carroll
• The Nerve Impulse Seen from Outside (web site)
Dexter Easton
• Electrochemical Equilibrium (Nernst) Lab (simulation)
Michael Davis
• Case studies for chapter review and integration
Ann McNeal ❖

American Physiological Society Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientist Award

The Bodil M. Schmidt-Nielsen Distinguished Mentor and Scientist Award honors a member of the American Physiological Society who is judged to have made outstanding contributions to physiological research and demonstrated dedication and commitment to excellence in training of young physiologists whether by mentoring, guiding and nurturing their professional and personal development, developing novel education methods/materials, promoting scientific outreach efforts, attracting individuals to the field of physiology, or by otherwise fostering an environment exceptionally conducive to education in physiology.

The award was established to recognize Bodil M. Schmidt-Nielsen, the first woman President of the Society and a distinguished physiologist who has made significant contributions in her field. The award of $1,000 and a commemorative plaque will be presented at the annual Experimental Biology meeting where the awardee will meet with APS members and young scientists. The first award will be made at EB 2004 in Washington, DC.

Nominations can be submitted to the Women in Physiology Committee by any member of the American Physiological Society. The nomination should include the following:

1. a letter stating the basis for nomination with a synopsis of the nominee's scientific contributions and mentoring skills and evidence related to the criteria, such as: assisting students with research funding or job placement, success of graduates, publications and presentations of graduate students, participation in graduate education activities, successful role model, teaching awards, descriptions of innovative teaching methods, etc.;
2. a list of current and former trainees and their current positions and any award they received;
3. at least two and up to five additional support letters;
4. nominee's current curriculum vitae.

The nomination packet should be submitted by either a nominator(s) or by a nominator and the nominee.

Applications can be sent to the following address: Bodil Schmidt-Nielsen Distinguished Mentor and Scientist Award, American Physiological Society, Education Office, 9650 Rockville Pike, Bethesda, MD 20814-3991.

Applications are due by October 1, 2003.

For questions, please contact the APS Education Office at 301-634-7132 or education@the-aps.org. ❖

American Physiological Society David S. Bruce Undergraduate Research Award

History

David S. Bruce (1939-2000) served as Chair of the APS Teaching Section and as a professor of physiology at Wheaton College from 1978-2000. Bruce was a dedicated physiology educator who played active roles in both the APS and the Human Anatomy and Physiology Society. As an undergraduate educator at Wheaton College, Bruce had a particular interest in engaging undergraduate students in scientific research. Bruce not only encouraged and supported his students in participating in research, but he also regularly brought undergraduate students to the Experimental Biology meeting, often to present their research findings. In 2000, Bruce died at the age of 61 of complications following a kidney transplant. The David Bruce Award will honor Bruce's commitment to promoting undergraduate involvement in research, in the APS annual meeting, and, ultimately, in research careers.

Procedure

The David S. Bruce Awards will be made each year at the Experimental Biology meeting to up to four undergraduate students who have both submitted abstracts for the meeting and award application materials. Abstracts will be reviewed by the David S. Bruce Award Committee prior to the Experimental Biology (EB) meeting. The award committee includes selected members of the APS Education Committee and, if deemed necessary, additional APS members to provide a breadth of coverage for major topic areas. The Award Committee will select 12-15 finalists. These students will be notified of their finalist status well in advance of the meeting.

At EB, all undergraduate students will be invited to present their research posters not only during their regular scientific session but also at a special poster session to be held Sunday evening prior to the Bowditch Lecture. Earlier in the day, the 12-15 finalists will be asked to set up their posters in the same room. They will be interviewed by the Award Committee in the afternoon. After the interviews, the Committee will decide the final awardees. The final awardees will be announced and will receive their certificates during the Sunday evening undergraduate poster session. Winners will also be announced at the APS Business Meeting on Tuesday evening.

Eligibility

Applicants for the David S. Bruce Award must:

1. be enrolled as an undergraduate student at the time of the application and at the time of the EB meeting;
2. be the first author on a submitted abstract for the EB meeting. Students may not submit more than one abstract for the award competition each year;
3. be working with an APS member who attests that the student is deserving of the first authorship;
4. have not previously won the David S. Bruce Award;
5. submit a one-page letter that discusses his/her role in the research, the significance of the research, and his/her career plans.

Review Criteria for Abstracts

Abstracts and student letters will serve as the basis for selection of the 12-15 finalists. Review criteria include the following:

- The abstract displays a clear logic and flow of ideas.
- The scientific problem includes a clear hypothesis to be tested, a well-described approach to the problem using clear experimental methods or model.
- The results of the study are presented succinctly.
- The discussion and/or conclusions are concise and follow logically from the results presented.
- The student's letter indicates that s/he played a significant role in the research, has an understanding of the significance of the research, and has some interest in a biomedical and/or physiology-related career.

Review Criteria for Poster Presentations

As noted above, the Award Committee will interview the 12-15 finalists during the special undergraduate poster session. Winners will be selected from among the finalists. The Awards Committee will consider:

- quality of the poster and oral presentation;
- quality of graphics used;
- organization of the poster;
- creativity used in displaying and describing the research as well as in the development of the research project;
- novelty of the research project;
- student display of his/her understanding of the work and its significance.

Awards

Following the poster presentation, the Awards Committee will meet to make their final selections. The APS Council previously recommended that the total number of awards be not greater than 10% of the applicant pool, with a maximum of four awards annually. Each of the awards will include:

- $500 travel award;
- award certificates for both finalists and awardees.

Note: All undergraduates already are eligible for free registration to EB; therefore, registration is not part of the award.

Award Presentation

As noted earlier, the awards would be presented at the end of the Sunday evening undergraduate poster session and will be noted at the APS Business Meeting on Tuesday evening. Presentation of the awards during the weekend is important since most undergraduate students are unable to stay at the meeting until the Tuesday business meeting; most leave by Monday afternoon. Those who stay until Tuesday generally leave in the afternoon.

Award Program Evaluation

The student finalists and awardees will be contacted in subsequent years to both determine their career progress and to invite their continued participation in APS meetings and activities such as the Summer Research Program. ❖

Congress Proposes Smaller Increases For NIH In FY 2004

In June, Congress took the first significant steps towards determining fiscal year (FY) 2004 funding levels for the National Institutes of Health (NIH) when the House and Senate Labor Health and Human Services and Education (Labor HHS) Subcommittees presented their legislation. These bills provide for the NIH and other government agencies. So far, the news out of the committees is profoundly disappointing when compared to previous fiscal years.

From FY 1999-2003, the NIH was awarded generous budget increases as part of a five-year effort to double the agency's budget. The culmination of these increases, which averaged 15% per year, came in FY 2003 when the agency received the final installment of funding to complete the doubling. However, the FY 2004 funding cycle got off to a bad start when the Bush administration put on the breaks by proposing 2.5% increase for NIH's first budget of the post-doubling era. The research and patient advocacy communities looked to the Congress to do better.

Unfortunately, the situation in both the House and Senate Labor-HHS Appropriations Committees was no better. When the two committees drafted their FY 2004 spending plans for the NIH in early June, the House panel recommended $27.89 billion or a 2.5% increase for NIH in FY 2004, while the Senate panel recommended $27.98 billion or a 3.7% increase. Increases for NIH research itself are supposed to be higher in each case due to transfers of funds from what are characterized as "one time costs" for non-research expenditures. These include upgrades and new construction of advanced research laboratories, NIH campus security enhancements, and anthrax vaccine procurement. The House and Senate Appropriations Subcommittees used transfers of these FY 2003 expenditures to the research line to enable NIH research to grow at an acceptable rate.

The Labor HHS appropriations bill is one of the biggest and most controversial appropriations bills. Because of this complexity, it has often been taken up late in the appropriations season in the hopes that additional funds will be made available for its programs. Because of this year's tight budget climate, this strategy is unlikely to play out. Therefore, members of the House and Senate Appropriations Committees are working hard to pass the legislation as quickly as possible. It was rumored that the Senate bill would go to the floor in the fall, but there has been no timetable set for action on the House legislation. Thus, there may still be time to urge Congress to provide additional funds for NIH research.

The ability of the NIH to take advantage of the benefits it has received through the doubling will be threatened if a funding increase in the range of 2-4% becomes law. Expert analysis developed by the Federation of American Societies for Experimental Biology (FASEB), the Association of American Medical Colleges (AAMC), and the Association of American Universities (AAU) showed that if the NIH funding increases were to dip below 6%, the beneficial impacts of the doubling would rapidly be dissipated. Writing in a May 2002 *Science* article, the experts noted that annual funding increases below 6% would "squeeze competing funding priorities and force retrogressive choices on NIH leadership." Future research would also be affected. The authors point out "at risk would be new research support, maintenance of previous commitments, adequacy of support for equipment and shrinking training opportunities." The APS supports the Ad Hoc Group for Medical Research Funding and FASEB in calling on Congress to provide NIH with a 10% increase in FY 2004. In late June the APS Legislative Action Center posted sample letters to Congress expressing support for NIH funding to continue the progress that has been achieved due to the doubling. The URL for these letters is http://www.the-aps.org/pub_affairs/leg_act_cntr/index.htm.

APS Asks USDA to Withdraw Prescriptive Animal Records Rule

The American Physiological Society urged the USDA to drastically revise a proposed rule that would require extensive medical records to be kept as part of Animal Welfare Act (AWA) compliance. While endorsing the need for animal health records, the APS objected to the specifics of the proposal. "In the research context, [animal] health records typically take a different form than what is appropriate in a clinical veterinary setting, APS President John A. Williams wrote in a comment letter to the USDA. "Nevertheless, the clinical setting seems to be the model for the proposed rule.

"Prescriptive regulatory detail is inappropriate because this rule touches upon an area that rightfully falls within the scope of the professional judgment of the attending veterinarian," Williams wrote. "Most attending veterinarians in research facilities have been specially trained to manage health problems that may arise in a research setting," Williams noted. "APHIS does not claim animal welfare in research facilities has been jeopardized due to poor record keeping," Williams pointed out. "Nevertheless, it proposes to require an expansive system of animal health records and has seriously underestimated the amount of time that will be needed and the volume of paperwork that will be generated to implement it."

Williams expressed concern that the proposed rule "has significant flaws that need to be addressed since as presently written, it could hamper the work of veterinarians and scientists alike." The APS recommended that the proposed rule be withdrawn and be "replaced with a simple statement requiring health records to document an animal's illness, veterinary, care, and treatment to promote communication among all those responsible for its care."

The full text of the APS comments is available on the web at http://www.the-aps.org/pub_affairs/leg_act_cntr/letter.htm.

APS Recommends NCRR Investment in Complex Systems Research

The American Physiological Society submitted recommendations to NIH's National Center for Research Resources (NCRR) in conjunction with the updating of the center's 1998-2003 strategic plan. The NCRR published a Federal Register notice on January 29, 2003, asking for input concerning important trends that will drive biomedical research in the near future, research resources and technologies critical to addressing those trends, and strategies to eliminate barriers to progress. NCRR intends to use these comments to develop a new strategic plan.

In its response, the APS emphasized "the need to translate genomic information into clinical strategies" and to "transfer knowledge gained from cellular and molecular studies to the level of actual states of health and disease in entire organisms." The complete APS statement is available on the web at http://www.the-aps.org/pub_affairs/leg_act_cntr/news/ncr.htm.

"The mapping of the human genome and the genomes of other organisms has currently provided biomedical science with an enormous amount of what is essentially raw information," the APS noted. "The challenge now is to turn genomic information into medically useful knowledge." This will entail "clarify[ing] how specific genes function in living organisms." However, because "the biomedical research community is sorely lacking in the knowledge and skills needed to assess these findings at the level of living tissues in organs, organ systems, and whole organisms," the APS urged NCRR meet this challenge by investing in the development of complex systems research capacity.

"The future development of our health care capabilities requires that we transfer knowledge gained from cellular and molecular studies to the level of actual states of health and disease in entire organisms," the APS said. This will require "confirm[ing] insights gained through cellular and molecular biology in complex physiological systems, namely whole animals."

The APS recommended that the NCRR develop programs to promote physiological and functional genomics. NCRR should also "foster coordination of research efforts at all levels ranging from cellular and molecular through whole animal studies into clinical application."

NCRR will hold a retreat this fall to discuss the recommendations it has received and to formulate a new strategic plan for its programs in biomedical technology, clinical research, comparative medicine, and research infrastructure.

APS Panel to Develop Exercise Research Guidelines

A group of exercise physiologists and lab animal veterinarians met in Bethesda on June 18, 2003 to begin developing a set of "Guidelines for the Care and Use of Animals in Physical Exercise Research."

The impetus for this project came from the Steering Committee of the Environmental and Exercise Physiology (EEP) Section. The initial purpose of the document was to assist APS journal editors and manuscript reviewers in determining whether exercise research studies had been conducted with appropriate consideration for minimizing discomfort and pain for research animals.

A small planning committee met in December 2002 and decided that the document would be most useful as a resource that researchers and IACUCs could use in developing and reviewing the design of exercise studies in conjunction with the requirements of the Animal Welfare Act, the ILAR *Guide for the Care and Use of Laboratory Animals*, etc. The idea is to identify the relevant scientific and animal welfare considerations to address in developing exercise research protocols.

The June 18 meeting included an expanded group of exercise researchers as well as lab animal veterinarians with specialized experience in protocol review. Topics to be addressed in the guidelines will include reasons why exercise research is important, study design considerations, and practical advice on conducting exercise research studies with the most commonly-used animal species.

A first draft of the document is expected later this summer. The NIH Office of Laboratory Animal Welfare has agreed to provide support for this project.

NIH Proceeds With Study Section Revisions

NIH's Center for Scientific Review (CSR) effort to revise study sections passed several milestones in the late spring and early summer when it completed the final Study Section Boundaries (SSB) Team review meetings, and the first restructured IRGs was put into place.

The last of the planned 17 SSB Team meetings took place in April 2003 and were posted for comments. Two months later, the new study sections created under the restructured Hematology IRG held their first meetings. This marks the beginning of the implementation phase.

Study sections created as part of the new the Biology of Development and Aging will hold their first meetings in October. Also in October, the new study sections under the reorganized Oncological Sciences and Musculoskeletal, Oral and Skin Sciences (formerly Musculoskeletal and Dental Sciences) IRGs will meet for the first time.

The CSR Advisory Committee has also granted permission for CSR to proceed with implementation plans for the following IRGs which will hold their first study section meetings in February 2004: Cardiovascular Sciences, Digestive Sciences, Bioengineering Sciences and Technologies, Respiratory Sciences,

and Renal and Urological Sciences.

CSR intends to implement these and other new IRGs as listed in the schedule on the Implementation Timeline and Developing Study Section Rosters page at http://www.csr.nih.gov/events/timeline.htm. Meeting this timetable will depend upon the availability of appropriate resources are available to support and staff these IRGs.

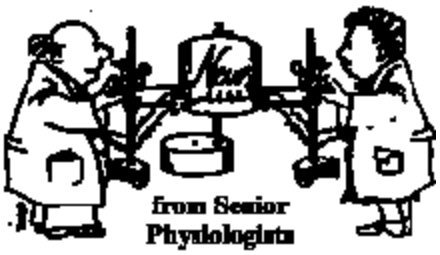
For further information on CSR Reorganization Activities, see http://www.csr.nih.gov/review/reorgact.asp. ❖

News From Senior Physiologists

Letters to Felix Bronner

Carl Gans writes: "Thank you for the birthday greetings. I've had a stroke and I'm partially paralyzed on my right side. Actually, this makes it even more pleasant to receive greetings such as yours and many students, one of whom came in today and spent the day with me. We spent time reviewing his most recent papers and others being prepared. I have given much of my equipment to the Museum in Brazil and slowly giving up my library. I achieved a merit certificate about three years ago for 50 years of service from The American Society of Mechanical Engineers. I'm spending my time with many books, thousands of which have been accumulating in my attic. I have not concentrated on science; I have occupied my time reading Dorothy Dunnett and Patrick O'Brien, among many other authors. Shortly after I left Michigan, I joined the faculty in Austin, TX, but unfortunately my wife passed away after taking good care of me for 50 years. I guess that 50 years of company is something that someone shouldn't complain about, instead of an early death. So I tried to look at the positive side of our science. I continue to be interested in burrowing animals and do some work on these. I guess I am more of a herpetologist than a physicist."

Noble Maluf writes: "Thank you for your good wishes about my forthcoming birthday and for the well-done print of 'Beaumont House' of the American Physiological Society."



Carl Hammen writes: "Thank you for your greetings and invitation to write a letter for *The Physiologist*. It is a sobering thought that when Claude Bernard was my age, he had already been dead for 14 years. Most of my career was spent teaching cellular and comparative physiology in a department of zoology, and doing research on metabolism of marine invertebrates. Before the PhD at Duke, I worked on cat and dog hearts in a pharmacology lab at a veterans hospital, and raised houseflies in the insect physiology lab at Army Chemical Center. When I went to the University of Rhode Island, a friend at Dartmouth extolled the experience of running the Boston Marathon. Starting at age 43, I did it 12 times, my best time 3:05:12 at age 50 in 1974. However, I discovered that long distance is not really my forte. I am best at 1500 to 5000 meters, a sort of geriatric Prefontaine, eager to enter the next age group and start winning again.

"Since becoming emeritus in 1993, I have enjoyed living in the cultural capitol of Florida, where one can run outdoors every day of the year, and swim in the Gulf, too (if you are Norwegian). Part-time jobs have included freshman biology at local community colleges, and four months as enumerator for the 2000 census. Toward the end, I became so adept at obtaining information that I was promoted to denominator. The most interesting and rewarding job has been teaching mathematics at Ringling School of Art & Design. With good instruction, art students can perform calculations with natural logarithms just as well as most physiologists can.

"Here is my advice to young scientists: work hard, publish those papers, get those grants, but remember to get some regular aerobic exercise. To live to a ripe old age, choose long-lived ancestors, avoid playing with firearms and driving your car on Saturday nights. As Disraeli said, never complain, never explain. As Nat Heard said, honesty is the best policy, and dishonesty is the second-best."

Frederic I. Giere writes: "Thank your for your kind request of April 24.

"I have enjoyed a rewarding life as an undergraduate teacher. I am grateful for my association with the dozens of students who have continued to earn the PhD in physiology or biochemistry.

"In preparation for that career, I was a student in Robert Gaunt's department at Syracuse. I accompanied my master's adviser, W. J. 'Tim' Eversole, when he went to the University of New Mexico. I was the first PhD student in that department to do his research on the Albuquerque campus. That was 50 years ago.

"Early in my teaching at Luther College, IA, summers were spent in an APS summer institute held at Carleton College, a research appoint-

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ment at the Upjohn Company and an APS research summer with Steven Horvath at Iowa. All through my teaching years I have enjoyed using APS materials when making presentations in secondary schools about careers in biology and physiology.

"The generous sabbatical leave program at Lake Forest College in Illinois allowed me to spend a year with Kaare Rodal at the Arbeidsfysiologisk Institutt in Oslo and two one-year periods with Norman G. Anderson in the Molecular Anatomy Program.

"For more than 20 years I was the director and/or instructor in the educational programs of the Division of Biological and Medical Research or the Center for Educational Affairs of Argonne National Laboratory. Those programs included 10 week summer institutes and weekend workshops for college and university teachers and lecture/laboratory series for undergraduates spending a semester of research at Argonne. Other consulting has been provided to the National Bureau of Standards and Abbott Laboratories.

"I have been a volunteer with the American Cancer Society for more than 40 years serving on the Division Boards of both Iowa and Illinois. In Illinois I was the chairman of its Research Committee for more than a decade. This committee evaluated the proposals from junior faculty members for seed money grants to help them become competitive for funding from national agencies. This was a very successful program when judged by the indices of subsequent national funding and publication in peer-reviewed journals. I was honored in receiving the ACS National-Divisional Award (St. George Medal) in 1983.

"I retired in 1988 after 26 years as chairman of the biology department of Lake Forest College, at which time I was appointed an Adjunct Professor at Northwestern University Medical School where I worked with Chung Lee for 12 years.

"The understanding and support of my wife of 48 years has made it possible for me to participate in these 'extra-curricular' activities. We have three adult children, all of whom have distinguished themselves in their chosen fields of engineering and business. They have provided us with five brilliant, cheerful and compassionate grandchildren who demonstrate potential for becoming productive citizens.

"Since 2000, time has been spent in community service, travel and enjoying my wonderful family."

John Hampton, Jr. writes: "Thanks for your inquiry about my present status. I have completed a satisfying career in physiology and academia. I enjoy my retirement.

"After completing requirements for my doctorate under Hymen Meyerson at the Tulane School of Medicine in 1949, I remained in the department through the ranks to full professor. Much of my research during the earliest years was with the use of isotopes to study hematology and iron metabolism and the physiological affects of whole-body radiation. The latter interest led to being an occasional research participant at the Oak Ridge National Laboratories. During three years, starting in 1960, I directed an AEC-NSF Tulane Summer Institute in Radiation Biology for college teachers. Here I also developed an interest in the care and reproduction of small primates. This led to two field trips to Colombia, SA, to study, in habitat, the cotton-top marmoset (Saguinus Oedipus). I also chaired the committee to prepare the application for the Delta Regional Primate Research Center. While at Tulane I was honored by earning a national appointment as a John and Mary Markle Scholar in Medical Science (1951-1956).

"In 1966 I moved to the University of Texas at Houston as Professor of Physiology in the Graduate School of Biomedical Sciences. There I concentrated on the already developed interest in reproduction of small primates. My experiences with the Graduate School of Biomedical Science were most rewarding. The graduate students with whom I worked as supervisor were excellent and several have done notable work in their careers. Indeed, my wife, Suzanne, earned her PhD here during my tenure.

"By 1973 I had a desire to 'move on' and accepted an appointment as Professor and Chairman, Department of Biology, Adelphi University, Garden City, NY. Facilities for research were limited but the experiences with the undergraduate student body and its needs were absorbing and rewarding. After three years I decided to move again.

"I accepted the position of Professor and Head of the Department of Biological Sciences at the California Polytechnic State University, San Luis Obispo, CA in 1976. Although research opportunities were limited in this position, the needs of a department with 51 faculty members provided many challenges. I often reflected on the fact that many small schools had no more than 51 faculty members totally. The challenges were many and varied. But I enjoyed the experience until my retirement in 1988.

"While at Cal Poly, I developed an interest in gerontology. It was possible to work with faculty in other disciplines to develop a program for students to minor in gerontology. Also, I created and taught a course in the physiology of human aging. This resulted in my writing and publishing a text in that field (*The Biology of Human Aging*, Wm. C. Brown Publishers, Dubuque, IA, 1991). It has been well-received and has gone on to subsequent editions by other authorship. By invitation, I prepared a popular book with my wife (Suzanne H. Hampton, PhD) entitled *Senior Years: Understanding Your Dog's Aging Process*. This was not a scholarly work!

"Although I am no longer in an academic or research position, my background in physiology continues to creep into my everyday life. My friends can reach me at thepilot9@aol.com."

Letters to Ed Folk

Hank Hirsch writes: "I retired last October and have more time to devote to my hobbies. These include sleeping as late as I want to, reading fiction, swimming, and most of all, science. I have been practicing science as a

hobby since I was five years old and find that I enjoy it more than ever."

David Minard writes: "Thanks for the beautiful card depicting Beaumont House. I will be proud to add this to my roster of gifts from the American Physiological Society, including the 50-year membership founders plaque.

"At present, I am living in a house near the Choptank River on the eastern shore of the Chesapeake Bay. My wife and I migrated here from Pittsburgh when I was on the graduate faculty of the School of Public Health for ten years. We enjoy being near the water and participating in hospital activities."

Letter to Gabor Kaley

Ralph Sonnenschein writes: "Thoughts at 80? First, I'm happy to have reached 80 years, and still be able to think. These days, after my 1988 retirement from the UCLA Department of Physiology (where I still have an office), having served there since 1951 when the Department was founded, I have plenty of time to reflect on my career and on the many people who helped me and shared my work and experiences.

"While a student at Northwestern Medical School, I had the opportunity, starting in 1944, to work in the laboratory of Dr. A. C. Ivy together with Dr. Morton Grossman, on a problem in gastrointestinal physiology (humoral control of Brunner's Glands), for which I was granted an MS degree. After a rotating internship at Michael Reese Hospital, 1946-47, I was able to continue research under Dr. Ivy, then at University of Illinois Medical School. I worked with Dr. Carl Pfeiffer, Chairman of Pharmacology, and some of his colleagues on 'Pain Mechanisms and Analgesia,' the subject of my PhD thesis, and also carried out some experiments on autonomic innervation of human sweat glands and piloerector muscles. In my last year and a half at Illinois, I worked in Dr. Warren McCulloch's neurophysiology laboratory on the mechanism of hyperoxic seizures, measuring cortical EEG, pH and O2 tension in animals subjected to high levels of PO2. I still have good friends from those times.

"After my arrival at UCLA, a month or so before the first medical class was admitted, I was actively involved with my new colleagues, Drs. Victor Hall, John Field, Alan Hemingway and Robert Smith in organizing and helping to teach the Physiology course. This included setting up the old-time 'inductorium' stimulators, smoked-drum kymographs, mercury manometers and other 19th-Century laboratory equipment that we continued to use for several years until the Grass Polygraphs and electronic stimulators (and some money) became available. I continued some research on control of cerebral circulation, and later switched mainly to muscle circulation following productive sabbatical leaves with Prof. Börje Uvnäs in Stockholm in 1957-58 and Prof. Björn Folkow in Gothenburg in 1964-65. I am grateful for those experiences and for the fact that I still have contact with those fine people and others of their colleagues whom I got to know.

"Another fascinating and instructive year was 1971-72 when I served with the US, Office of Naval Research, London, with the 'duty' of visiting university or governmental research laboratories throughout Europe to learn about and report on ongoing research. I visited many such laboratories in London and throughout the UK, as well as in Iceland, France, Germany, Poland, Czechoslovakia, Hungary, Turkey, Denmark, Sweden and Finland. These contacts led to some long lasting friendships. A few years later, I was named an Honorary Member of the Hungarian Physiological Society, a great honor.

When, in 2000, APS acknowledged my 50-year membership, I recalled that some of the senior members of APS in 1950, with whom I came in contact, might well have known students of the 1887 founders of the Society—so brief has been our Society's history! That history, and the history of physiology in general, continues as one of my abiding interests. I sense that our students, particularly since the advent of computerized databases, have little interest in or knowledge of what went on prior to that time. Of course, I realize that this may have always been the complaint of the 'elders.' If I have any advice for the 'younger' generation, it is to get and keep an interest in our predecessors and their contributions to concepts and techniques that led to modern advances in our science.

"My own interest in the history of physiology and related sciences has been stimulated and enhanced by my collection, started in the 1970s, of portrait medals of individuals in those fields, along with some medals lacking portraits but issued to celebrate scientific congresses and the like. The collection, still growing, now numbers over 2000 pieces, many of which are of great artistic merit. My wife Pat has been a wonderful helper and inspiration in this project. A special side-advantage to this hobby has been our gaining several good personal friends among similar collectors, mainly in France, Germany, Spain, Italy, Czech Republic, Hungary, Romania, as well as USA. This more recent coterie of friends has added to our 'professional' physiological friends with whom I have had the pleasure of working with and/or meeting over the years, from Sweden, Finland, France, UK, Hungary, Czech Republic, Slovakia, China, Japan, Ireland, and USA. Contact with these friends and colleagues is one of my great pleasures. My thanks and greetings to all of those who may read these lines.

"My thanks also to my wife Pat who keeps me going both at home and on our still frequent travels, and to our children David, Lisa and Ann, who, together with their crew of eight grandchildren, give us great joy and pride." ❖

Postdoctoral Positions

Postdoctoral Position: Position available immediately to study the effects of T cells on the life span of dendritic cells and/or the role of Type I Interferons in dendritic cell activation. Potential candidates should have PhD, MD degree or equivalent. Highly motivated individuals with a recent PhD in cellular and molecular immunology are encouraged to apply. Prior experience with animal models is highly desirable. Forward letter of application, CV and Email addresses of three references to Fax: 215-590-4644 or Email: gallucci@email.chop.edu and armbruster@email.chop.edu. Applications via Email are preferred.

Postdoctoral Position: A two-year postdoctoral position is available July 1, 2003 in the Department of Physiology at Texas Tech University Health Sciences Center (http://phy025.lubb.ttuhsc.edu/). Our objective is to understand the mechanisms that underlie ischemia-induced bradycardia (slowed heart rate) in the sinoatrial node, the pacemaker of the heart. The techniques include patch-clamp recordings of spontaneous electrical activity or ionic currents in pacemaker cells isolated from the rabbit sinoatrial node (see *Am J Physiol* 282: H2284-H2295, 2002 for details), ratiometric measurements of indo-1 fluorescence (intracellular Ca) in isolated pacemaker cells and, in collaboration with Dr. Ariel Escobar, "pulsed local-field fluorescence" microscopy. With this technique, we can monitor intracellular Ca (with indo-1) and/or membrane potentials (with di-8-ANEPPS) in a small volume of cells within the intact sinoatrial node (see *Pflugers Archiv* 445: 747-758, 2003 for details). Applicants should have a PhD or MD and experience with patch-clamp techniques, preferably in cardiac myocytes. Please send, by Email message or attachment, your CV, a brief description of your prior experience and the names and Email addresses of three references to Richard D. Nathan, at richard.nathan@ttuhsc.edu.

Postdoctoral Position: The Department of Physiology and Biophysics, Weill Medical College of Cornell University has an NIH-funded position available immediately to investigate the regulation of expression of epithelial Na channels in native tissues and heterologous systems. The work will use a combination of electrical and immunocytochemical approaches. Candidates should have a PhD or MD degree and experience in electrophysiology and/or cell biology. Send a letter of interest, CV and three references to Lawrence G. Palmer, PhD, Dept. of Physiology and Biophysics, Weill Medical College of Cornell Univ., 1300 York Ave. New York, NY 10021; Email: lgpalm@med.cornell.edu.

Postdoctoral and Research Assistant: Positions are available immediately to conduct basic research in the Stress Neurobiology Center at the Children's Hospital of Philadelphia. The Center studies the mechanisms and circuitry involved in acute responses to stress, cellular and molecular mechanisms underlying stress-related psychiatric disorders, mechanisms linking stress to substance abuse, interactions between stress and pain, and regulation of the peripheral viscera by the brain. For the present positions, expertise in immunohistochemistry, Western blotting, and molecular biology are recommended. Contact: Dr. Rita J. Valentino 215-590-0650; valentino@email.chop.edu. For more information about the unit see http://stokes.chop.edu/web/neuro.

Postdoctoral Position: A postdoctoral position is available in the Spinal Cord Research Center (http://www.scrc.umanitoba.ca) at University of Manitoba, working in the laboratory of Dr. Phillip Gardiner. The current research focus in Dr. Gardiner's lab is the examination of acute and chronic activity-related changes in electrophysiological and metabolic characteristics of rat and mouse spinal cord neurones and neuromuscular junctions. The successful candidate will conduct experimental work involving electrophysiological measurements from motoneurones, interneurones and muscles in small mammals in vivo and in situ, and involving immunohistochemical and stereological analysis of neurones in fixed spinal cord sections. Dr. Gardiner's lab is one of several labs in the Center, devoted to the study of spinal cord functional systems, and considerable collaboration among the various laboratories in the group is the norm for most trainees. Ample support services are available, including a large in-house computer data and capture and analysis system along with the support of a full-time analyst/programmer. Equipment specialized for our particular experiments are designed, constructed and maintained by a full-time electronics engineer. This grant-funded position is renewable for up to three years, with salary in accordance with the standards of the Canadian Institutes of Health Research. The University exercises a Canadian first policy; however, all those qualified are encouraged to apply. The University of Manitoba encourages applications from qualified men and women, including members of visible minorities, aboriginal people and persons with disabilities. The University offers a smoke-free environment. The Faculty of Medicine is situated near downtown Winnipeg, with easy access to the Winnipeg International Airport, as well as the centers of cultural activity such as the Centennial Concert Hall, the Manitoba Theatre Center, the Museum of Man and Nature, and the Winnipeg Art Gallery. Please contact Phillip Gardiner, PhD, Spinal Cord Research Center, Department of Physiology, 436 Basic Medical Sciences Bldg, 730 William Avenue, University of Manitoba, Winnipeg, Manitoba, R3E 3J7, Canada. Tel.: 204-789-3761; Fax: 204-789-3930; Email: gardine2@ms.umanitoba.ca.

Postdoctoral Positions: One or two NIH-funded postdoctoral positions are available immediately in the Division of Signal Transduction (Dept. of

Medicine) at Beth Israel Deaconess Medical Center (Boston, MA) in the laboratory of Dr. Stephen Soltoff. The projects seek to examine the relationships between various cell signaling molecules and fluid and electrolyte secretion and other biological events in epithelial (salivary gland) cells. Cellular and molecular aspects of cell lines and freshly isolated cells are to be analyzed. For at least one position, experience in transepithelial electrophysiology (short circuit current measurements) and cell and molecular biology techniques are preferred. Both positions will utilize imaging (microscopy) and molecular biology techniques. Send inquiries or applications to: Stephen P. Soltoff, PhD, Beth Israel Deaconess Medical Center, Division of Signal Transduction, Harvard Institutes of Medicine, 330 Brookline Avenue, Boston, MA 02215; Email: ssoltoff@bidmc.harvard.edu. Applications should include letter explaining research interests, curriculum vitae, and names, addresses, phone numbers, and Email addresses of three references.

Postdoctoral Positions in Comparative and Developmental Physiology: The first position requires a strong background in the fields of nutritional and environmental physiology. Experience in aquaculture is preferred. The successful candidate will study the effects of diets and hormones on phosphate metabolism by fish and on phosphorus levels in aquaculture effluents. The second position requires an expertise in molecular biology and physiological genomics and will have two responsibilities. The successful applicant will help existing efforts to identify and characterize nutrient-responsive genes that respond to phosphorus deficiency in fish as well as developmentally-regulated genes that respond to dietary signals in the rat intestine. The successful candidates will join a highly active laboratory with a focus on two main projects. The first project funded by the USDA aims to increase our understanding of the link between fish metabolism and levels of phosphate in aquaculture effluents. The second project, funded by the National Science Foundation, studies the signals regulating the expression of intestinal nutrient transporters in early development. The successful candidates will join several clinical faculty, two postdoctoral fellows, as well as several medical and undergraduate students, and will, therefore, have ample opportunities for an expanded research experience. Salary negotiable depending on education and research experience. Kindly send your CV and names, phone numbers, and Email addresses of three references before September 30, 2003 to: Dr. Ron Ferraris, Dept. of Pharmacology and Physiology, UMDNJ-New Jersey Medical School, 185 S. Orange Ave., Newark, NJ 07103-2714; Fax: 973-9727950 (ferraris@umdnj.edu, no attachments please)

Postdoctoral Position: Available Immediately, University of Vermont College of Medicine Neuroscience, Burlington, VT, USA. NIH-funded postdoctoral position to study mechanisms underlying lower urinary tract dysfunction following spinal cord injury or bladder inflammation. The roles of neurotrophic factors in injury/dysfunction/development are investigated with a multidisciplinary approach that includes: anatomical tracing, immunostaining, electrophysiology, biochemical, and molecular assays. Previous experience in several of these approaches is required. Applicants must have strong motivation and excellent communication skills. Funding is available for two years. Applicants should send a curriculum vitae and bibliography, names and addresses of three references to: Margaret A. Vizzard, PhD and Gary M. Mawe, PhD, University of Vermont, Department of Anatomy and Neurobiology, D-411 Given, Burlington, VT, USA 05405; 802-656-3209; Margaret.Vizzard@uvm.edu; Gary.Mawe@uvm.edu.

Postdoctoral Fellowship: In metabolic research-Metabolism Unit, UTMB, Galveston, TX. Current projects entail human clinical research in burns, aging, exercise, and space flight. Stable isotope methodology utilized to investigate protein/amino acid, fatty acid and glucose metabolism. Position available to start immediately. Send CV and references to Dr. Arny Ferrando, aferrand@utmb.edu.

Research Positions

Assistant Research Scientist: The University of Iowa Carver College of Medicine, Department of Internal Medicine, Pulmonary, Critical Care and Occupational Medicine Division is seeking an Assistant Research Scientist to perform basic research in understanding the function and biochemistry of the cystic fibrosis transmembrane conductance regulator (CRTR). The work will include an understanding of the theories and methods required to address important problems in the function and cell biology of this protein in epithelial and nonepithelial cells. The work will involve a combination of electrophysiologic, biochemical and recombinant DNA techniques. Requires 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. Desires postdoctoral experience in patch clamp electrophysiology; research experience in the area of Cystic Fibrosis and in the biochemistry of membrane proteins and recombinant DNA techniques. Desires the ability of the person to obtain funding for their demonstrated work. Please send resume and cover letter indicating #44727 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA, 52242-1081. [EEO/AA]

Assistant Research Scientist: The University of Iowa College of Medicine, Department of Internal Medicine, Division of Cardiovascular Diseases, is seeking an Assistant Research Scientist to perform basic research to advance knowledge concerning the role of the central nervous system in the pathophysiology of heart failure. The work will require expertise in theoretical and methodological aspects of integrated cardiovascular physiology and demonstrated expertise in the production of heart failure in rodent models and in the measurement of neural and humoral mediators of central neural processing. Requires a PhD or an equivalent professional degree, i.e., MD, DDS or DVM, and at least two years of postdoctoral research training. In addition, the person will have demonstrated the ability to plan and independently execute a research study. Desires experience in the areas of cardiovascular physiology, central neural regulation of the circulation, and experimental models of heart failure. Please send resume and cover letter indicating #44733 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA, 52242-1081. [EEO/AA] Women and minorities are strongly encouraged to apply.

Assistant Research Scientist: University of Iowa Carver College of Medicine, Department of Internal Medicine, Cardiovascular Diseases Division, is seeking an Assistant Research Scientist to perform basic or applied vascular research in an area of considerable scope and complexity in which existing theory or methods may be limited or lacking with responsibility for identifying and selecting the problems to be studied, the approach to them and the results obtained. Requires 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. Requires completion of at least a two-year postdoctorate. Desires research experience in the areas of inflammation, host-pathogen interactions, and/or reactive oxygen species; experience with techniques of protein and lipid analytical biochemistry, molecular biology, enzymatic assays, immunoprecipitation, HLPD, Western blot, subcellular fractionation, and detection in reactive oxygen species. Please send resume and cover letter indicating #44739 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA, 52242-1081. [AA/EEO]

Associate Research Scientist: The Department of Internal Medicine, Cardiovascular Diseases Division at the University of Iowa Carver College of Medicine is seeking an Associate Research Scientist to perform independent basic research on problems related to vascular biology, inflammation, and free radical biology, focusing on the role of infectious agents and reactive oxygen species in vascular inflammation, host-microbe interactions, and atherogenesis, which present critical or unusually difficult obstacles to understanding and which involve the development of new theories or methodologies with complete responsibility for all aspects of the research project. Requires 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 normally have accumulated several years of progressively responsible independent research work. This work will be evidenced by publications, inventions and the like, which have had considerable impact and value to the person's field or discipline. Desires considerable research experience and publication record in the areas of inflammation, host-microbe interactions, and reactive oxygen species. Desires considerable experience with techniques of protein and lipid analytical biochemistry, enzymatic assays, immunoprecipitation, HPLC, Western blot, analysis of signal transduction proteins, large-scale protein purification, subcellular fractionation and detection of reactive oxygen species. Desires knowledge of molecular biology techniques, including cloning of DNA fragments and PCR products into plasmic vectors, bacterial transformation, and transfection of mammalian cells. The candidate is expected to play an active role in training and supervising postdoctoral fellows and research assistants, preparing research papers and seeking independent funding. Please send resume and cover letter indicating #44735 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA, 52242-1081. [AA/EEO]

Faculty Positions

Tenure Track Faculty Position: The Division of Basic Biomedical Sciences at The University of South Dakota School of Medicine is seeking a faculty member to complement and extend existing research strengths in the Systems Physiology research group. The position is available at the Assistant or Associate Professor level. Applicants must have a PhD and/or MD degree, a minimum of two years of postdoctoral experience and demonstrated potential to attract extramural funding. Rank and salary will be commensurate with qualifications. Position includes competitive start-up funds. The successful candidate will be expected to establish a strong, extramurally funded, collaborative research project with existing faculty and will participate in the instruction of graduate, undergraduate and medical students. More information about the Division of Basic Biomedical Sciences can be found at http://www.usd.edu/biomed/java/faculty/phys.shtml. Applicants should send curriculum vitae, statement of research plans and three letters of reference to: Carleen McNeely, Systems Physiology and Structural Biology Search Committee, Division of Basic Biomedical Sciences,

USD School of Medicine, 414 E. Clark St., Vermillion, SD 57069. Consideration of applications will begin on August 1, 2003 and will continue until the position is filled. [EEO/AAE]

Assistant/Associate/Full Professor Physiology: The Department of Physiology at Jefferson Medical College, Thomas Jefferson University, Philadelphia, PA, seeks outstanding candidates for a full-time faculty position at the Assistant, Associate or Professor level. Candidates should have an active research program addressing fundamental problems in cardiovascular biology, an area targeted or multidisciplinary development at Jefferson. Areas of special interest are cardiac and smooth muscle physiology, ion channels, second messenger systems, and microcirculation. The successful candidate will receive an academic tenure track appointment and be expected to contribute to teaching of both medical and graduate (PhD) students. Candidates must hold a doctoral degree, have a minimum of two years postdoctoral experience (for Assistant Professor level), show strong evidence of being able to generate NIH funding for an independent research program. Candidates with current research funding are preferred. Send curriculum vitae, a brief description of research interests, and the names and addresses of three references to: Marion J. Siegman, PhD, Professor and Chair, Department of Physiology, Jefferson Medical College, 1020 Locust Street, Philadelphia, PA 19107. Applications must be received by September 1, 2003. You may visit our web site http://www.tju.edu/physiology.

Assistant/Associate Professor, Neuroscientist/Neurophysiologist: The Center for Substance Abuse Research and the Department of Physiology at Temple University School of Medicine are seeking a candidate for a joint position at the Assistant or Associate Professor level with a tenure tack appointment. The person should have a PhD, postdoctoral experience, and an active research program with grant funding. The successful candidate should have the ability to interface with existing research ongoing in the Center involving drugs of abuse and neuroimmune pathways, HIV infectivity, receptor mechanisms, pain, or thermoregulation. Areas of interest for a neuroscientist applying cellular or systems level electrophysiological techniques to study the neurobiological basis of substance abuse and addiction. The incumbent will also be expected to participate in professional and/or graduate student educational programs. Send a CV, statement of career objectives, and names of at least three referees to Dr. Martin W. Adler, Director, Center for Substance Abuse Research, Temple University School of Medicine, 3400 N. Broad Street, Philadelphia, PA 19140.

Faculty Position: The Department of Physiology and Developmental Biology at Brigham Young University announces the availability of one faculty position for Winter or Fall, 2004. Applicants should have an MD degree or a PhD in developmental biology, physiology, neuroscience, cellular/molecular biology, or related area and should be capable of teaching courses in tissue biology, developmental biology, physiology, anatomy, or pathophysiology. In addition to classroom teaching, faculty are expected to participate in professional service and scholarship. Candidates must demonstrate a high potential for establishment of an externally funded research program as evidenced by postdoctoral experience, publications, and previous and current funding. To strengthen current areas of research emphasis in the department, applicants with training and experience in the fields of developmental biology, cell signaling, biophysics, or neuroscience will be given preference. Interested scientists are invited to send a letter of application, curriculum vitae, and one-page statement of research interests and goals to Dr. Will Winder, Chair Search Committee, Department of Physiology and Developmental Biology, Brigham Young University, Provo, UT 84602 by August 31, 2003. Tel: 801-422-3093; Fax: 801-422-0700; Email: william_winder@.byu.edu. After an initial screening, applicants will be given specific instructions on the application process. Brigham Young University, an equal opportunity employer, is sponsored by The Church of Jesus Christ of Latter Day Saints and requires observance of Church standards. Preference is given to members of the sponsoring church.

Biology: The Belmont University Department of Biology invites applications for a full-time position in Biology, beginning August 2003, for a one academic year appointment. The successful candidate would be eligible to apply for tenure-track status after one year. Teaching duties will include anatomy and physiology and general education courses in biology for non-majors. A PhD is required by July 1, 2003. Candidates must demonstrate extraordinary potential for undergraduate teaching excellence and a commitment to engaging students in a rigorous and interactive undergraduate liberal arts education. Preference will be given to applicants who have demonstrated excellence in both teaching and the potential to maintain a strong undergraduate research program. Screening of applicants will begin April 15, 2003 and continue until the position is filled. Please submit a letter of application, curriculum vita, statement of teaching philosophy, statement of research interests and how they may be applied to an undergraduate research program, and three letters of recommendation to Dr. Nick Ragsdale, Department of Biology, Belmont University, 1900 Belmont Boulevard, Nashville, TN 37212-3757 (email: ragsdalen@mail.belmont.edu). Candidates are asked to respond to Belmont's mission, vision, and values statements in a written statement articulating how the candidates' knowledge, experience and beliefs have prepared them to function in support of that statement. A comprehensive, coeducational university located in Nashville TN, Belmont is a

student-centered, teaching university focusing on academic excellence. The university is dedicated to providing students from diverse backgrounds an academically challenging education in a Christian community and is affiliated with the Tennessee Baptist Convention. [EEO/AA]

Physiological Psychologist/ Psychopharmacologist: GEO-CENTERS, INC., a high technology, growth-oriented research and development firm specializing in scientific and engineering services for the Department of Defense is seeking a Physiological Psychologist/Psychopharmacologist (PPP) to support our operations in Dayton, OH. Responsibilities include assessing the impact of environmental exposures on behavioral and neurophysiological endpoints with an emphasis of the development of new cellular-level models for the prediction of behavioral compromise. The "PPP" will develop protocols, design research studies, supervise technicians in the collection of data, analyze data, and publish research findings in scholarly journals. Candidate will have a PhD in physiological psychology, psychopharmacology, or a neuroscience subspecialty involving electrophysiological analysis of brain tissue. Experience with and understanding of behavioral measurement systems, electrophysiological recording techniques, along with strong analytical reasoning skills are minimal prerequisites. US Citizenship is Required. GEO-CENTERS, INC. (http://www.geo-centers.com) offers a competitive salary and benefits package. Qualified candidates should forward their resume/CV in Word format with salary requirement and VISA status to staffing@geo-centers.com. GEO-CENTERS, INC. is an equal opportunity, affirmative action employer. M/F/H/V. ❖

Book Reviews

Skeletal Muscle Structure, Function, & Plasticity: The Physiological Basis of Rehabilitation, 2nd Edition.

Richard L. Lieber.
Baltimore, MD: Lippincott Williams & Wilkins, 2002, 369 pp., illus., index, $57.00.
ISBN: 0-7817-3061-9.

Introduction. The Second Edition of this popular textbook on the human musculoskeletal system is specifically designed to provide rehabilitation professionals with a scientific basis for muscle treatment. The hard-cover Second Edition constitutes an ambitious and major improvement over the smaller, soft-cover First Edition. The organization is similar to the First Edition with Part 1 the foundations of basic science comprised of Chapter 1 devoted to muscle development and anatomy; Chapter 2 mechanical and physiological properties of skeletal muscle; and Chapter 3 the interactions among muscles, tendons and joints. Part 2 contains applications of the basic science concepts. Chapter 4 includes methods of increasing muscle activity through chronic electrical stimulation, passive stretch, voluntary exercise and surgical transfer and the effects of increased usage. Chapter 5 clarifies the plasticity of muscle as exemplified by decreased-use models of immobilization, spinal cord injury, denervation, and weightlessness. Finally, Chapter 6 closes the book with descriptions of the cellular and physiological response of muscle to injury and experimental treatment of muscle disease, including methods for avoiding, or minimizing injuries.

Purpose. The book is designed specifically for students in the various fields of physical rehabilitation which would include, physical therapists, rehabilitation specialists, occupational therapists, athletic trainers, and exercise leaders. The author displays clearly his 'love' for his topic and has made every effort to focus the book on information this occupational group 'needs to know' regarding the areas selected for coverage in the six chapters. Tailoring the book so specifically to the needs and requirements of physical therapists and trainers inevitably makes the book somewhat less useful for other groups. Exercise physiologists and muscle physiologists will find the book useful as an introductory treatment of skeletal muscle, but will need to move on to more advanced textbooks for treatments of muscle, myofiber and cross-bridge structure and function.

Coverage of Topics. For the audience targeted, rehabilitation therapists, the selection of topics is appropriate, with the exception of the coverage of embryonic development of skeletal muscle including: myogenesis, synaptogenesis, mitochondrogenesis, the activation system, and the critical role of satellite cells in repair. These topics are so critical to a basic under-

standing of the subsequent topics 'degeneration-regeneration,' 'denervation-re-innervation' and adaptation to use and disuse, that a more thorough coverage would have paid off dividends through the provision of a better foundation. The author moves on quickly to a more adequate coverage of the structural characteristics of the myofibrils, sarcomeres, cross-bridges, myosin isoforms, fiber types and whole muscles. The handling of the physiology of skeletal muscle is in keeping with the needs of the students to understand the functional basis for the production of movement, adaptation to increased and decreased use, and response to impaired function caused by denervation, disease and contraction-induced injury.

Shortcomings. As with any textbook, errors in omission and commission are present. Omissions have already been covered in previous sections. Extremely distracting is the extensive and inappropriate use of the terms 'eccentric' and 'concentric.' These terms have specific dictionary definitions of 'off-center' and 'on-center' circles and are used in cardiovascular physiology appropriately in reference to heart muscle hypertrophy, adaptation, or remodeling (Ahmad & Spotnitz, *Comput Biomed Res* 25 201, 1992). Valid criticisms of the use of these terms as adjectives in reference to the type of muscle contractions go back to the 1960s (Rodahl et al., *Muscle as a Tissue*, 1962). Furthermore, 'eccentric' is applied to a number of other conditions, load, stimulation, activation, and adaptation, that cannot be justified even under the guise of 'muscle lingo.' Another error of commission is the inclusion of a number of controversial findings that have not been validated , or are associated with conflicting results. Textbooks, particularly for students, should restrict their coverage to well-proven 'material.'

Figures and Drawings. Overall, the drawings, photomicrographs and histological, histochemical, and electron micrographical figures are excellent. The understanding of so many concepts in skeletal muscle structure and function, muscle contractions, movement, and adaptation are dependent on the clarity and visual impact of the images presented. The author has made extremely perceptive selections of a wide range of visual cues to get critical points across to the students. At the beginning of the book, the absence of any introductory comments associated with the five color figures detracts significantly from the impact of the overall excellence of these drawings and pictures. Even a one page commentary as to the purpose of these figures would have increased the usefulness considerably.

References. An extremely positive aspect of the treatment of each of the major topics is emphasis on the historical importance of the early investigators in each field and the significance of their contributions. Some of the historical contributions include: the 'sliding filament' hypothesis (Huxley & Niedergerke and Huxley & Hanson, 1954, p. 25), the cross-innervation experiments (Buller, Eccles & Eccles, 1960, p. 60 & 200), the length-tension relationship (Gordon, Huxley, & Julian, 1966 and Edman, 1966, P. 52), the force-velocity relationship (Hill, 1938 and Katz, 1939, p. 60), the role of ATP in the cross-bridge cycle (Szent-Gyorgi, 1953 and Maruyama & Gergely, 1962, p. 66), the properties of motor units (Burke, 1967, Burke et al., 1973, p, 92, 198), the mechanisms of muscle fatigue (Merton, 1954), and the orderly recruitment of motor units (Henneman, Somjen & Carpenter, 1965, p. 211). ❖

John A. Faulkner
University of Michigan

The Destiny of Germans in St. Ivan and Other Writings

Rajko Igic.
Biographical Publishing Company, Prospect, CT, 2002, 126 pp., USA $19.95, CAN $31.95.
ISBN: 1-929882-29-7.

This is a biographical collection of stories and poems written by the scientist and humanist Rajko Igic. Igic was a founder and head of the Department of Pharmacology at the Tuzla Medical School, in the former Yugoslavia, from 1978 to 1992. He immigrated to the US in 1993. The author reflects on important people, researchers, and events that shaped his life and his scientific career. For the most part, it is up to the reader to interpret these episodes from the author's life. As Igic points out by citing Dostoyevsky, "truth or reality is the most poetic thing in the world; it is even more fantastic than the ordinary human mind is capable of fabricating and conceiving" (p.13).

In addition to the author's memories from his childhood in post-war Serbia, poems, and other writings, the book includes chapters on three great researchers that all, yet in a different way, had a strong influence on the authors career. Ulf Svante von Euler (1905-1983), the famous Swedish physiologist and Nobel Prize laureate (1970), was among the first to visit post-World War II Yugoslavia and establish collaboration with Yugoslav physiologists and pharmacologists. In his book, Igic vividly recalls the first International Symposium on Substance P held, of all places, in Sarajevo (Bosnia and Herzegovina) in 1961. This meeting brought together some of the most influential physiologists and pharmacologists of our times such as von Euler, Pernow and Gaddum. Igic later went on to devote his scientific career to the investigation of biologically active peptides,

(continued on page 180)

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including substance P, a peptide hormone that was originally discovered by von Euler.

Another chapter is devoted to Professor Ervin G. Erdös, a well-known biochemist and pharmacologist who became a scientific mentor and personal friend of Igic. What started as a meeting of scientific minds interested in metabolism of bioactive peptides eventually evolved into a long-lasting collaboration and friendship. Erdös played an important role not only in the author's scientific development but also in his private life providing much needed support when Igic and his family arrived as refugees in the US in 1993. The chapter contains lively anecdotes and experiences from his sabbaticals spent in Erdös's laboratory.

The Balkan region, so frequently engulfed in wars and civil unrests, is not considered a fertile ground for scientific research. Despite the odds, a few brave and creative minds have been able to make their mark on the international scene. One of them that the author is so fond of is Ivan Djaja (or Jean Giaja, 1884-1957). Djaja was founder and head of the Department of Physiology at the University of Belgrade. Trained in France, Djaja spent almost 50 years working at the University of Belgrade. He was internationally recognized for his contribution to the understanding of thermoregulation and of hibernation. The chapter includes an anecdote about his discovery related to the hibernation phenomenon that the author heard from an American physiologist in Oklahoma City.

The Destiny also parallels the destiny of a multi-ethnic society in the volatile region of the former Yugoslavia. History predicts the destiny of this multi-ethnic society. The most recent event in the region, one experienced by author and his family, the exodus from the former Yugoslavia, triggered memories of events that took place in his hometown in the aftermath of World War II some 50 years ago. Scientists share the fate of their societies; the frustration comes about when analytical and deductive minds try to comprehend the logic of a society in war.

That frustration is echoed in a poem "Quo Vadis, Humanity." The other two poems ("Dream" and "Are We Inferior to Dolphins") also convey a strong anti-war message. This book is an interesting read for young scientists, international scholars, humanists, and all those curious to find out if we are really "inferior to dolphins." ❖

Tomislav Dragovich
University of Arizona

Books Received

Biochemistry: The Chemical Reactions of Living Cells. 2nd Edition, Volume 1.
David E. Metzler.
San Diego, CA: Elsevier, 2001, 937 pp., illus., index, $95.00.
ISBN: 0-12-492540-5.

Biochemistry: The Chemical Reactions of Living Cells. 2nd Edition, Volume 2.
David E. Metzler.
San Diego, CA: Elsevier, 2003, 1973 pp., illus., index, $95.00.
ISBN: 0-12-492541-3.

The Dana Guide to Brain Health.
Floyd E. Bloom, MD, Flint Beal, MD, and David J. Kupfer, MD, (Editors).
New York: Free Press, 2003, 733 pp., illus., index, $45.00.
ISBN: 0-7432-0397-6.

Encyclopedia of Hormones, Volume 1, 2, and 3, A-Z.
Helen L. Henry and Anthony W. Norman (Editors).
New York: Academic, 2003, 666 pp., 725 pp., 763 pp., illus., index, $599.95. (3 Vol. Set).
ISBN: 0-12-341104-1;
ISBN: 0-12-341105-X;
ISBN: 0-12-341106-8.

Exercise: Hot Topics.
Manu V. Chakravarthy, MD, PhD, and Frank W. Booth, PhD.
Philadelphia, PA: Hanley & Belfus, 2003, 326 pp., illus, index, $29.95.
ISBN: 1-56053-568-7.

Functional and Neutral Mechanisms of Internal Timing.
Warren H. Meck, Editor.
Atlanta, GA: CRC, 2003, 351 pp., illus., index, $149.95.
ISBN: 0-8493-1109-8.

Functional Genomics: Methods and Protocols.
Miichael J. Brownstein and Arkady B. Khodursky (Editors).
Totowa, NJ: Humana, 2003, 258 pp., illus., index, $89.50.
ISBN: 1-58829-291-6.

Living with Hemochromatosis: Expert Answers to Your Questions about Iron Overload.
Gregory T. Everson, MD, FACP, and Heddy Weinberg.
New York: Hatherleigh, 2003, 234 pp., illus., index, $15.95.
ISBN: 1-57826-104-X.

Quantitative Genetics, Genomics and Plant Breeding.
Manjit S. Kang, Editor.
New York: Oxford University, 2003, 400 pp., illus., index, $140.00.
ISBN: 0-85199-601-9.

The Physiologist
Vol. 46, No. 4, 2003

Masashi Yanagisawa Wins Bristol-Myers Squibb Cardiovascular Research Award

Recognized for Endothelin Discoveries; Hormones That Regulate Vascular Tone, Implicated in Illnesses

Masashi Yanagisawa, who holds the Patrick E. Haggerty Distinguished Chair in Biomedical Science at the University of Texas Southwestern Medical Center at Dallas and is professor of molecular genetics and an investigator at the Howard Hughes Medical Institute, was named winner of the Thirteenth Annual Bristol-Myers Squibb Award for Distinguished Achievement in Cardiovascular Research. Yanagisawa is being recognized for his discoveries related to endothelins, a group of hormones that affect vascular tone and have important implications for the treatment of heart and renal failure, pulmonary hypertension, ischemic strokes and other disorders.

In 1988, at the age of 28, while still a doctoral candidate, Yanagisawa published his pivotal work on the identification, isolation, cloning and early characterization of the pharmacology of endothelin, a hormone whose discovery has resulted in an explosion of science in the area of vascular biology. Endothelin is a peptide hormone that regulates vascular tone. Elevated endothelin levels can lead to increased vascular resistance in diseases like congestive heart failure, pulmonary hypertension, acute renal failure and ischemic stroke. His work has led to the development of endothelin receptor antagonists that may be used in each of these conditions. Since that initial discovery, he has continued to explore and define the field, identifying endothelin receptors, cloning the first such receptor, as well as identifying the proteases that convert proendothelin to endothelin.

By using mouse knockout technology, Yanagisawa has also been successful in establishing unexpected roles for endothelin in embryonic development. The neural crest is a strip of cells that differentiate into many cell types within the embryo. Yanagisawa demonstrated that endothelin is required for their differentiation into the jaw, pharynx and nerve cells in the gut. Most recently, he has turned his attention to a family of neuropeptides called orexins that are involved in the regulation of sleep and appetite.

Masashi Yanagisawa

"As a young medical graduate student at Tsukuba University, Dr. Yanagisawa excited the scientific world with his novel and creative approaches to identifying new hormones that led to his discovery of the endothelins," says Richard E. Gregg, vice president, Clinical Discovery, Bristol-Myers Squibb.

"Since that time, an entire field of medical research has developed around his original discoveries. And, during that time, he has led the field at every stage. He has continued to be extremely creative in his research related to vascular biology and more recently has branched out into discovering and characterizing new protein hormones in the brain.

"Today, the first endothelin receptor antagonist drug is in use and many others are in the drug development pipeline. In addition, companies are at work on inhibitors of endothelin converting enzymes. Dr. Yanagisawa is truly a gifted, imaginative and dedicated researcher who, at each step in his career, has been on the cutting edge of innovation, always creatively journeying beyond the current frontier to one just beyond the horizon. His colleagues have long recognized both his brilliance and his abilities, and now this award provides further recognition of his scientific contributions."

Yanagisawa received his MD degree, summa cum laude, in 1985, and his PhD in Medical Sciences in 1988, both from the University of Tsukuba. He began his academic career as an assistant professor of pharmacology at the Institute of Basic Medical Sciences at the University of Tsukuba in 1989, moving to his current institution in Texas in 1991, initially as an associate professor of molecular genetics and an associate investigator at the Howard Hughes Medical Institute. Of some 200 publications, he is best known for his publication of the initial endothelin findings in *Nature* in 1988 and then, for an unprecedented set of three papers on the unexpected developmental roles of endothelins and endothelin receptors, published in a single issue of *Cell* in 1994.

The Bristol-Myers Squibb Unrestricted Biomedical Research Grants Program, under which the Distinguished Achievement Award is presented, was initiated in 1977. It marked its 25th anniversary in 2002 and has surpassed $100 million in no-strings-attached funding in six biomedical research areas: cancer, cardiovascular, infectious disease, metabolic disease, neuroscience and nutrition. The Award, a $50,000 cash prize and a silver commemorative medallion, is awarded annually in each of the six therapeutic areas. The recipient is selected by peer review. Yanagisawa will officially receive the cardiovascular award at the annual Bristol-Myers Squibb Distinguished Achievement Awards dinner on October 16, 2003, in New York City.

Bristol-Myers Squibb is a global pharmaceutical and related health care products company whose mission is to extend and enhance human life. ❖

APS Members Receive Fulbright Scholarship

Two APS members were among the 850 American academics, professionals, and independent scholars who received awards under the Fulbright Scholars Program to lecture, consult, or conduct research abroad in 2002-3. Robert Wondergem, Qullen College of Medicine, East Tennessee State University, Johnson City, TN, will be fulfilling his award in Belgium. Geula Gibori, University of Illinois College of Medicine, Chicago, will be fulfilling her award in France. ❖

Montrose Named Interim Chair

Marshall Montrose has been named interim chair of the Indiana University Department of Cellular and Integrative Physiology. The appointment became effective May 12.

He succeeds Rodney Rhoades who stepped down as chair but will remain on the full-time faculty until June 30 when he retires.

Rhoades has served as department chair (previously known as the Department of Physiology and Biophysics) since 1981. He also has been director of the Indianapolis Center for Advanced Research: Applied Biophysics for Medicine since 1990.

Rhoades joined the IUSM faculty in 1976. He previously had been a research scientist at the National Heart and Lung Institute, acting director of the Environmental Science Center (part of the Institute for Science and Engineering) and on faculty at Pennsylvania State University.

Montrose received his doctorate from the University of Rochester. He joined the IUSM faculty in 1998 after 10 years on faculty at The Johns Hopkins University medical school. ❖

APS Member Hershel Raff Elected to Endocrine Society Council

The Endocrine Society announces the election of seven new officers to fill vacancies and new positions in its Council. The newly elected Council members are Anthony Means, (President-elect), Hershel Raff, (Secretary-Treasurer Elect), John H. Nilson, (Vice President, Basic Scientist), Janet E. Hall, (Vice President, Clinical Scientist), Carolyn B. Becker, (Vice President, Physician-in-Practice), Daniel J. Drucker, (Member At-Large).

Each member of The Endocrine Society's Council serves a one-year term.

Raff is Professor of Medicine and Physiology at Medical College of Wisconsin and the Director of the Endocrine Research Laboratory at St. Luke's Medical Center. He received his PhD from the Johns Hopkins University in 1981 and did a postdoctoral fellowship in Endocrinology at UCSF. Raff is currently on the Publication Committee of the American Physiological Society and he has served as Associate Editor of *Endocrine News* and the *American Journal of Physiology*. Additionally, Raff is Chair of The Endocrine Society's Development Committee and a member of the Finance Committee as well as the ENDO 2003 Task Force on Cardiovascular Theme committees. ❖

John A. Armour has joined the Department of Pharmacology, University of Montreal, Montreal, Canada. Armour was formerly associated with the Department of Physiology and Biophysics, Dalhousie University, Halifax, Nova Scotia, Canada.

Stephen M. Black has affiliated with St. Patrick Hospital International Heart Institute, Missoula, MT. Black was previously associated with Northwestern University Medical School as Research Director of Neonatology, Chicago, IL.

Arend Bonen recently joined the Department of Human Biology and Nutritional Sciences, University of Guelph, Guelph, Ontario, Canada. Bonen had been affiliated with the Department of Kinesiology, University of Waterloo, Ontario, Canada.

Shaoyou Chu has associated with the Department of Cell Biology and Genetics, University of North Texas Health Science Center, Fort Worth, TX. Chu recently moved from the Department of Cellular and Integrative Physiology, Indiana University School of Medicine, Indianapolis, IN.

Dave C. Clarke is presently affiliated with the Department of Chemical Engineering, University of Colorado, Boulder, CO. Clarke was previously associated with the Department of Kinesiology, University of Waterloo, Ontario, Canada.

Malcolm Cox has accepted the position of Dean for Medical Education, Harvard Medical School, Boston, MA. Prior to his present assignment, Cox was the Associate Dean, Department of Academic Programs, University of Pennsylvania School of Medicine, Philadelphia, PA.

Scott Earley recently joined the Department of Pharmacology, University of Vermont, Burlington, VT. Earley was formerly with the Department of Cell Biology and Physiology, University of New Mexico Health Science Center, Albuquerque, NM.

Joseph S. Handler has affiliated with the Cell and Molecular Biology Section, NIH/NHLBI, Bethesda, MD. Handler had been Director of the Division of Nephrology, and Professor of Medicine, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, MD.

Jeffrey Michael Hausdorff has joined the Movement Disorders Unit, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel. Hausdorff was previously associated with the Department of Gerontology, Beth Israel Deaconess Medical Center, Boston, MA.

Yasuo Kawakami was formerly associated with the Department of Life Science, University of Tokyo, Tokyo, Japan. Currently, Kawakami has affiliated with the Department of Sports Science, Waseda University, Saitama, Japan.

Douglas B. Light recently joined the Department of Biology, Lake Forest College, Lake Forest, IL. Light was previously affiliated with the Department of Biology, Ripon College, Ripon, WI.

Mingyue Liu has affiliated with the Department of Anesthesiology, Oregon Health & Science University, Portland, OR. Prior to his new position, Liu was associated with the Department of Anesthesiology, Johns Hopkins University School of Medicine, Baltimore, MD.

Alejandro Lomniczi has joined the Department of Neuroscience, Oregon Health Sciences University, Beaverton, OR as a Physiology Instructor. Lomniczi was formerly with the Department of Neuroendocrinology, Center for the Study of Pharmacology and Botany, Buenos Aires, Argentina.

Jennifer Lucitti is presently associated with the Children's Hospital of Pittsburgh, Rangos Research Center, Pittsburgh, PA. Formerly, Lucitti was with the Department of Biology, New Mexico State University, Las Cruces, NM.

Malcolm A. Lyons has accepted a position with the School of Biotechnology and Biomolecular Sciences, University of South Wales, Sydney, Australia. Lyons had been a postdoctoral fellow with the Jackson Laboratory, Bar Harbor, ME.

Stuart Brett Mazzanoe is currently a CJ Martin Fellow with the Howard Florey Institute, University of Melborne, Parkville, Victoria, Australia. Prior to his new assignment, Mazzanoe was with the Department of Medicine, Johns Hopkins University Asthma and Allergy Center, Baltimore, MD.

Christopher Louis Mendias has become affiliated with the University of Michigan, Ann Arbor, MI. Mendias was previously associated with the Department of Physiology, The University of Arizona, Tucson, AZ.

Andrew J. Messaros has accepted a position of Professor, Department of Biology, Ave Maria College, Ypsilanti, MI. Messaros was formerly associated with the Department of Exercise Science, West Virginia University School of Medicine, Morgantown, WV.

Julia Ann Moffitt has joined the Guidant Corporation in St. Paul, MN, as a Senior Research Scientist. Moffitt had previously been associated with the Department of Biology, Wartburg College, Waverly, IA.

Michael B. Reid is presently affiliated with the Department of Physiology, University of Kentucky, Lexington, KY. Reid was formerly with the Department of Medicine Pulmonary Section, Baylor College of Medicine, Houston, TX.

Seung Kyoon Woo recently joined the Division of Nephrology, University of Maryland, Baltimore, MD, as Assistant Professor of Medicine. Before his new assignment, Woo had been affiliated with the Department of Medicine, Johns Hopkins University, Baltimore, MD.

National Board of Medical Examiners

Call for Nominations

2004 John P. Hubbard Award

The National Board of Medical Examiners (NBME) invites nominations for the 2004 John P. Hubbard Award. This award recognizes individuals who have made a significant contribution to the assessment of professional competency and educational program development at any level along the continuum of medical education and delivery of health care.

It is expected that the successful candidate will have demonstrated outstanding achievement in one or more of the following areas:

• a substantial record of fostering the development of evaluation methods and/or measurement techniques;

• personal contributions to basic or applied research in the creation or improvement of assessment methodology;

• accomplishment in improving the quality of evaluation at an organizational level;

• contributions through the education or mentoring of students, colleagues, fellows, or graduate students, to further progress in evaluation.

A letter of nomination is to be submitted from a primary sponsor specifically addressing the nominee's achievements in relation to at least one of the criteria and is to be accompanied by the nominee's current curriculum vitae and any other relevant information that would be useful to the Hubbard Award Committee. These materials must be received no later than September 5, 2003. The Award Committee will select finalists. Nominators of finalists may be asked to submit additional information.

Direct all materials or inquiries to: 2004 John P. Hubbard Award Committee, National Board of Medical Examiners, 3750 Market Street, Philadelphia, PA 19104. Tel.: 215-590-9648, Email: Hubbard@nbme.org. ❖

AAAS Award for Public Understanding of Science & Technology

Nomination Deadline: August 1

The AAAS Award for Public Understanding of Science & Technology, established in 1987, recognizes scientists and engineers who make outstanding contributions to the "popularization of science." A monetary prize of $5,000, a commemorative plaque, complimentary registration, and reimbursement for reasonable travel and hotel expenses to attend the AAAS Annual Meeting to receive the prize are given to the recipient.

The Award shall be given annually to scientists or engineers who, while working in their fields, have also contributed substantially to public understanding of science and technology.

Types of activities to be considered include books, magazines, and newspaper articles; broadcasting; lecturing; museum presentation and exhibit design; and other public outreach activities, local, national, or international.

Nominators are encouraged to identify candidates whose contributions reach broad audiences that include women, minorities, disabled persons, and senior citizens.

Eligible individuals include scientists and engineers (individual or a small group) from all disciplines (including social sciences and medicine) engaged in research, teaching, and related activities that have contributed substantially to the public's understanding of science or technology. Only materials produced for general audiences, as opposed to professional or trade audiences, will be considered. Employees of the AAAS are not eligible.

All nominations must be printed or typed and submitted fully completed and postmarked on or before midnight, 1 August.

Nominations may be made by AAAS affiliate organizations, universities, government agencies, media, research organizations, and individuals.

Prior nomination does not exclude a candidate from consideration in subsequent years.

The panel of judges will include distinguished scientists, engineers, and science communicators named by AAAS. The decisions of the Panel will be final.

During the Award year, AAAS may ask winners to contribute to public understanding of science by speaking to groups of AAAS constituencies, helping to identify people to work with youth and the public, and participating in other AAAS activities related to public communication of science.

Nomination Procedures

You should provide:

Name, position, institution, professional address and Email, professional phone and fax, home address and home phone number of the candidate; name, position, institution, and professional address and phone of the nominator; a statement of the action or actions that form the basis for the nomination; the candidate's vita; the names of two supporting persons whom AAAS may contact for more information on the candidate and his/her/their contributions; and at least one representative sample which illustrates the nominee's contribution. Books, videotapes, brochures, magazine articles, or other materials are appropriate.

All materials become the property of AAAS.

Please submit all information to: Pubic Understanding Awards Coordinator, Education & Human Resources Directorate, American Association for the Advancement of Science, 1200 New York Avenue, NW Room 608, Washington, DC 20005
Tel: 202-326-6670, Fax: 202-371-9849, Email: jkass@aaas.org. ❖

29th Annual Topics in Gastroenterology and Liver Disease: Medical and Surgical Aspects

September 22-24, 2003

Johns Hopkins University School of Medicine, Department of Obstetrics and Gynecology
Baltimore Marriott Inner Harbor Hotel, Baltimore, MD

This annual postgraduate course, originating from the Division of Gastroenterology and the Department of Surgery of the Johns Hopkins University School of Medicine, is designed for the gastroenterologist, primary care physicians and surgeons who care for patients with gastrointestinal and liver diseases. Through an extensive series of lectures and panel discussions, the participants will obtain information on current concepts and controversies, clinical management guidelines, and new technologies and treatments in the fields of Gastroenterology and Hepatology, providing information that can be incorporated into their clinical practice. Informal luncheon panels will offer opportunities for case presentation and discussion.

This activity has been approved for AMA credit hours.

Deadline for early registration: August 12, 2003.

For more information, contact: Office of Continuing Medical Education, Johns Hopkins University School of Medicine, Turner 20, 702 Rutland Ave., Baltimore, MD 21205-2195. Tel.: 410-955-2959, Fax: 410-955-0807; Email: cmenet@jhmi.edu, Web: http://www.med.jhu.edu/cme. ❖

Protein Purification: Isolation, Analysis, and Characterization of GFP

Presented by: The State University of New Jersey—Rutgers Campus at New Brunswick. The Center for Research and Education in Bioluminescence and Biotechnology

A Five and One-Half Day Hands-On Laboratory Course Using the Remarkable Green-Fluorescent Protein (GFP), A Novel Marker For Gene Expression, as the source material

January 11-16, 2004
March 14-19, 2004

More than 1,100 scientists from around the world have strongly recommended this intensive course as an opportunity to develop protein research and analytical skills in a retreat setting. Participants work hard, identify and solve problems in the lab and enjoy camaraderie and good food and drink with colleagues.

This five and one half day laboratory course covers a wide variety of conventional methods for protein isolation, purification, and characterization. The course format integrates hands-on laboratory exercises with classroom lectures, demonstrations, study breaks, and short take-home assignments.

A special feature of the course is that all laboratory work will be performed on the same starting sample (Aequorea GFP or recombinant GFP), which will be purified from an exceedingly crude form (starting with tissue or bacterial cell extraction) to near homogeneity as judged by high performance liquid chromatography (HPLC), SDS gel electrophoresis, isoelectric focusing, and western blotting. This feature provides a continuity of purpose, integrating dozens of preparative and analytical protein techniques in a way that few competing courses can match.

Course Format

Course participants will extract an easily visualized chromoprotein, the green-fluorescent protein, (*Science* vol. 263 pp. 802-805,1994) from a frozen tissue sample or bacterial cell pellets, clarify the extract, and then concentrate and purify the protein by "salting out." Gel filtration, ion exchange, hydrophobic interaction, and size exclusion HPLC chromatography will then be employed to extensively purify the desired protein (GFP) from the crude extract. The unique nature of this brilliantly fluorescent protein allows you to follow all phases of the purification with a simple hand-held mineral light, enhancing the students' understanding of each process.

This course integrates lecture and laboratory sessions to provide a comprehensive learning experience. The course begins with an introductory lecture on Sunday afternoon. Everyone is strongly encouraged to attend this session, but participants who cannot arrive for the Sunday lecture may begin the course on Monday morning (at the laboratory location).

The course concludes Friday afternoon with an interactive problem-solving workshop and tour of the mass spectroscopy facilities at Cook College, Rutgers.

If you wish to register by phone or have any questions with your registration, please contact the CREBB registration desk at 732-932-9071 extension #216 or #212 and speak with Bill Ward.

Tuition Fee:
$1,995 (Regular registration pre-paid 3 weeks prior to start of course)
$1,795 (Multiple registration—2 or more attendees from the same site)
$2,495 (Late Registration)
$1,295 (Discount for attendees from academia 3 weeks prior to start of course)

The Center for Research and Education in Bioluminescence and Biotechnology, Attn.: Daniel Gonzalez, Rutgers University—Cook College, Department of Biochemistry and Microbiology, 76 Lipman Drive, New Brunswick, NJ 08901-8525, Tel.: 732-932-9071, Email: wward@aesop.rutgers.edu (Randy Ward), crebb@rci.rutgers.edu (Bill Ward), meton@rci.rutgers.edu (Daniel Gonzalez), http://www.rci.rutgers.edu/~meton/register-protein.html, http://www.rci.rutgers.edu/~meton/protein.html. ❖

International Course on Laboratory Animal Science

Utrecht, The Netherlands

A two-week intensive course on laboratory animal science will be organized at the Department of Laboratory Animal Science, Utrecht, The Netherlands from June 1-11, 2004. This course has been organized yearly since 1993.

The objective of this course is to present basic facts and principles that are essential for the humane use and care of animals and for the quality of research.

The contents of the course are in line with recommendations of the Federation of European Laboratory Animal Science Associations (FELASA) regarding the training of the young scientist whose research involves the use of vertebrate animals.

The course may also be of interest for those who intend to set up a similar course at their location. For this purpose, during the course the acquisition of teaching materials can be discussed with the course committee.

For information and application forms, please contact: Prof. L.F.M. van Zutphen, PhD, or Mr. Stephan van Meulebrouck, MA, Department of Laboratory Animal Science, Faculty of Veterinary Medicine, PO Box 80.166, 3508 TD Utrecht, The Netherlands; Tel.: 31-30-2532033, Fax: 31-30-2537997, Email pdk@las.vet.uu.nl; Web: http://las.vet.uu.nl (click on "Education and Training"). ❖

Pain Management Grand Round

Pain Management Grand Round
Date: Ongoing, March 2003-March 2004
Sponsor: Johns Hopkins University, School of Medicine
Location: http://www.hopkinscme.edu

The target audience includes, but should not be limited to: Anesthesiologists, Oncologists, Orthopedic Surgeons, Physical Medicine and Rehabilitation Specialists, Internists, Trauma Surgeons, General Physicians, and other clinicians and nurse practitioners involved in chronic pain management. The Johns Hopkins University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians.
The Johns Hopkins University School of Medicine designates this educational activity for a maximum of one category one credit toward the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the activity.

Fees: None

Contact: Kristen Hughes, Office of Continuing Medical Education/ Funded Programs, Johns Hopkins University, School of Medicine, Turner 20, 720 Rutland Ave., Baltimore, MD 21205-2195; Tel. 410-955-2959, Web: http://www.hopkinscme.edu.

Primer on Sleep Disorders for the Primary Care Physician

Date: October 3-4, 2003
Location: Johns Hopkins University, School of Medicine, Thomas B. Turner Auditorium, Baltimore, MD

Sponsored by: Johns Hopkins University School of Medicine, Division of Pulmonary and Critical Care Medicine

The medical aspects of sleep have shown progressive importance over the last two to three decades. Sleep problems are a very common reason for visits to primary care physicians. However, sleep histories are rarely obtained and information about sleep and its disorders are minimally touched upon in most medical school curricula. In this course we will discuss the fundamental aspects of sleep and sleep deprivation, review techniques on screening and testing for sleep disorders, and review the diagnosis and treatment for several common sleep complaints and disorders.

Accreditation and Credit Designation Statements: The Johns Hopkins University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. The Johns Hopkins University School of Medicine takes responsibility for the content, quality and scientific integrity of this CME activity.

The Johns Hopkins University School of Medicine designates this educational activity for a maximum of 7.75 hours in category 1 toward the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the activity.

Registration Deadline:
September 30, 2003

Fees: Physicians, Residents*, Fellows*, and Allied Health Professionals
*with verification of status $150

Contact: Conference Coordinator, Johns Hopkins University School of Medicine, Office of Continuing Medical Education, Turner 20, 720 Rutland Ave., Baltimore, MD 21205-2195; Tel. 410-955-2959, Fax: 410-955-0807, Email cmenet@jhmi.edu. Web: http://www.hopkinscme.org/cme.

September 7-12
XIIIth International Conference on Invertebrate Dioxygen Binding Proteins, Mainz, Germany. *Information:* Internet: http://www.io2bip.uni-mainz.de/

September 10-14
Aldosterone adn ENaC: From Genetics to Physiology, Banff, Canada. *Information:* APS Conference Office, The American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel.: 301-634-7967; Fax: 301-634-7241; Email: meetings@the-aps.org; Internet: http://www.the-aps.org.

September 11-19
Genetic Approaches to Complex Heart, Lung and Blood Diseases, Bar Harbor, Maine. *Information:* Applications for this course are being accepted by the Jackson Laboratory, 600 Main Street, Bar Harbor, ME 04609-1500. Tel: 207-288-6263; Fax: 207-288-6080; Email: kgk@jax.org; Internet: http://www.jax.org/courses/hlb_03.html

September 27-October 1
European Respiratory Society Annual Congress 2003,Vienna, Austria. *Information:* ERS Headquarters, 1, boulevard de Grancy, CH-1006 Lausanne, Switzerland; Fax: +41 21 617 28 65; Internet: http://www.ersnet.org.

September 29-30
Third Annual Meeting of the Safety Pharmacology Society, The Netherlands. *Information:* Contact the Safety Pharmacology Society, P.O. Box 7033, Audubon, PA 19407. Fax: 610-630-1544; Email: execdir@safetypharmacology.org

September 30-October 1
The First US National Symposium on Frontiers in Biomechanics—Forging a New Biomechanics in the Era of Modern Biology, Nashville, TN. *Information:* http://www.bmes.org/meetings.asp

October 1-3
Cancer Vaccines 2003, Cancer & HIV Vaccines: Shared Lessons, New York, NY. *Information:* http://www.cancerresearch.org.

October 1-4
Understanding Renal and Cardiovascular Function Through Physiological Genomics, Augusta, GA. *Information:* APS Conference Office, The American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel.: 301-634-7967; Fax: 301-634-7241; Email: meetings@the-aps.org; Internet: http://www.the-aps.org.

October 1-4
2003 Annual Fall Meeting of the Biomedical Engineering Society, Nashville, TN. *Information:* Biomedical Engineering Society, 8401 Corporate Drive, Suite 225, Landover, MD. Tel: 301-459-1999; Fax: 301-459-2444; Email: BMES2003@bmes.org, Internet: http://www.bmes.org.

October 17-October 20
First Meeting of the ESC Working Group on Acute Cardiac Care, Rome, Italy. *Information:* ESCW-GACC2004 Secretariat, PO Box 574, Jerusalem 91004, Israel. Tel: +972-2-6520574; Fax: +972-2-6520558; Email: meeting@isas.co.il, Internet: http://www.isas.co.il/escw-gacc2004.

October 23-October 26
Third International Congress on Vascular Dementia, Prague, Czech Republic. *Information:* Congress Secretariat, Kenes International, 17 Rue du Cendrier, P.O. Box 1726, CH-1211 Geneva 1, Switzerland; Tel: +41 22 908 0488; Fax: +41 22 732 2850; Email: vascular@kenes.com; Internet: http://www.kenes.com/vascular.

November 6-7
National Institutes of Health Biomedical Information Science and Technology Initiative (BISTI), Natcher Conference Center, NIH, Bethesda, MD. *Information*: http://www.bisti.nih.gov/2003meeting.

November 18-21
1st International Conference on Polyphenols and Health, Vichy, France. *Information:* Internet: http://www.evicevents.com/polyphenols/index.html

2004

February 14-18
48th Annual Meeting of the Biophysical Society, Baltimore, MD. *Information:* http://www.biophysics.org

May 31-June 5
31st Annual Meeting of the International Society for the Study of the Lumbar Spine, Porto, Portugal. *Information:* Secretary, Dr. Scott Boden, Sunnybrook and Women's Health Science Center, Room MG 323, 2075 Bayview Avenue, Toronto, Canada, M4N 3M5. Internet: http://www.issls.org

July 2-10
Fourth International Congress of the African Association of Physiological Sciences, Tangier, Morocco. *Information:* Email: aapsmorocco04@yahoo.com

August 31- September 4
Twelfth International Congress of Endocrinology, Lisbon, Portugal. *Information*: http://www.ice2004.com.