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# "What's in a Name?"

(Romeo and Juliet, Act II, William Shakespeare)

# **Musings of a Past-President**

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Stanley G. Schultz

Since 1989 I've served two years as Councillor of the American Physiological Society, one year as President-Elect, one as President, and one as Past-President. If I've accomplished nothing else during that period, I did a lot of travelling as my engorged Continental frequent flyer account can attest. And, because it takes at least two hours to fly from Houston to most any place else worth flying to

(even El Paso!), there were many opportunities to become engaged (willingly or not) in conversations with strangers sitting next to me; when I wanted to avoid this I plugged earphones into my head immediately after boarding and listened to tapes of favorite operas — a maneuver which most, but not all, passengers respected.

In time, the question from my in-flight neighbors I grew to dread most was "What do you do?"

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Why? Because when I answered "I am a physiologist", the response was usually "What is that?" Or, in one instance, "Isn't that nice. I also enjoyed philosophy in college!"

On occasion, hoping to forestall long explanations of my societal utility, I would answer "I was *trained* as a physician." But, often, after ultimately being forced to reveal that I specialized in cardiology, I would end up having to discuss the pros and cons of various diets (frequently while being served an atherogenic meal on the plane) and the difference between "good cholesterol" and "bad cholesterol".

In time, I developed a severe case of "name-envy" (Freud would have called it "Namen-neid"). Why couldn't my profession have a name that reasonably intelligent, educated people can understand — one that actually describes what I do? If I were an anatomist, (bio)chemist, pharmacologist, let alone lawyer or engineer, most educated people would know roughly what I do to earn my keep. Indeed, many of these names actually derive from the descriptors of professional activity. Anatomy derives from the Greek "to dissect" and chemistry derives from alchemy, which in turn relates to the "pouring of fluid". Physiology derives from the Ionian,  $\phi \nu \delta \epsilon \omega s$  meaning "all of nature" and  $\lambda o \gamma o s$ , or "scientific reason" (in contrast with "mythos") (10,11). Thus, physiologists are "scientists or students of all nature" akin to the "natural philosophers" of old! While this descriptor is grandiose and somewhat romantic (conjuring up in an opera lover visions of Faust), it is rather dated and obscure; it, in fact, represents what was left behind when, over the years, other disciplines split off and assumed more identifying titles!

Why all this musing? Well, between 1986 and 1989 I was a member of the APS Long-Range Planning Committee,

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#### WHAT'S IN A NAME?

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chaired by my dear friend and colleague for more than a quarter of a century, Ernst Knobil, charged with generating a position paper dealing with no less an issue than the *future of physiology* and the role of the APS. In a White Paper entitled "What's Past is Prologue", published in 1990 (4), the committee addressed the problem of revitalizing the image of physiology and recommended that the APS should "officially adopt and promulgate the definition of physiology as "Integrative Biology". In somewhat guarded phrases we even suggested that we contemplate the possibility of "gradually changing the name of the APS to rectify the incomprehension of the word physiology by the community-at-large, the confusion of undergraduates and the inability of professional physiologists to come to agreement regarding its meaning."

The responses to this suggestion have covered the waterfront. On the one extreme, some consider it treasonous to even contemplate blemishing the "grand old name" with modifiers such as "cellular" and/or "molecular", let alone abandoning it! Others argue "What's in a name? *Wouldn't* that which we call a rose by any other name . . . smell as sweet?" (italics and modification mine).

Well, with all due respect to many of my friends and colleagues and the Bard of Avon, I feel that whether we relish it or not *there is a great deal in a name*! How many new cars are named "Edsels"? How many male children are named "Atilla"? There are at least 84 companies listed in the Houston business telephone book that would be delighted, for a fee, to help you select a name for a new product—one of them is itself called *ImageMaker*! What about the descriptor "integrative biology"? Certainly, in comparison with "physiology" it better captures the spirit of what we do and, more importantly, how we think—our "point of view" or "Weltanschauung" if you will. Further, as I will try to argue briefly, it enjoys a firm epistemological foundation that qualifies it as more than a "catchy" name but as a *bona fide*, nonderivative, discipline.

During the four decades that have elapsed since the discovery of the structure of DNA and the birth of molecular biology, we have acquired an enormous body of information dealing with, and in some instances even an understanding of, life processes at the molecular level. These irrefutable successes have fueled the age-old epistemological notion of "reductionism" which maintains that, in the final analysis, all physical and biological (inanimate and animate) systems conform to the same set of fundamental laws; for the biologist, this means that all living processes can be explained in terms of, or reduced to, the same laws governing the behavior of molecules and atoms that apply to inanimate systems.

Few of us will challenge that assertion. But we must distinguish between the ability of an epistemological approach to "explain" (or provide *proximate causes*) and its ability to "predict". Central to this distinction is the notion of "emergence" which argues that properties or phenomena may emerge as the result of the integration of (or interactions among) two or more hierarchical systems that cannot be predicted, even in hindsight, from a complete knowledge of the properties of the component systems; these "novel" properties are intrinsically dependent on and derive from the act of integration and vanish upon disintegration (6-8). This does not imply that these emergent properties violate the first principles of physics and chemistry nor does it invoke the supernatural or an *élan vital*. Also, it does not imply that the emergent properties are inexplicable at the molecular or atomic levels. All it may infer is that as *hierarchical* systems become more complex, the number of possible properties that they may assume become so large that those that emerge are just as (or almost just as) likely as the many that are not realized and are, thus, unpredictable. In other words, what we observe in complex systems may in fact be "accidents".

Thus, it is argued, "reductionism", while necessary and powerful, has inherent structural limitations; it is explanatory but nonpredictive. It is not "constructionist". As succinctly stated by the solid-state physicist Philip Anderson (1), "The ability to reduce everything to simple fundamental laws does not imply the ability to start from those laws and reconstruct the universe . . . The behavior of large and complex aggregates of elementary particles, it turns out, is not to be understood in terms of a simple extrapolation of the properties of a few particles. Instead, at each level of complexity entirely new properties appear, and the understanding of the new behaviors requires research which I think is as fundamental in its nature as any other."

The theoretical limitations of reductionism and the notion of "emergence" have been the subjects of numerous philosophical discussions (6,7,9,14) and were recently the focus of a lively exchange between the archreductionist Steven Weinberg and Ernst Mayr, the doyen of Neo-Darwinism (5,13). Whether the properties of complex systems can, in theory, be predicted from first principles given a complete knowledge of those principles, big enough computers and enough money and time (i. e., could be described probabilistically by a sufficiently large Hamiltonian or Langrangian) or whether complexity *per se* invokes *new first principles* is a debatable issue. Is the whole, in fact, greater than the sum of its parts?

But from a practical point of view, the words of the intellectual father of modern physiology, Claude Bernard, are as true today as when they were written 130 years ago (2), "... when we unite physiological elements, properties appear which were imperceptible in the separate elements. ... All this proves that these elements, though distinct and self-dependent, do not therefore play the part of simple associates; their union expresses more than addition of their separate properties." I doubt if one could phrase a more succinct and compelling rationale for "Integrative Biology" as a nonderivative discipline.

Returning to the question that is the title of this essay what's in a name?—I sense the beginning of a groundswell for a formal identification of "integrative biology" with the "physiology of the future" (cf 3). Not simply because of its descriptive virtue but also because it focuses attention on a direction of biological research that undeservedly has been relegated by many to "poor cousin" if not "Neanderthal" status by an avalanche of reductionism, energized by the power and successes of molecular biology; biological research, in the words of Anderson (1), "... is as fundamental in its nature as any other."

On future flights, when my seat-mate inquires about my profession, I'll reply "I'm an integrative biologist" and in a future essay I'll let you know what happens. Any bets? **References** 

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# A Matter of Opinion

# **The Spring Meeting Revisited**

In the April issue of *The Physiologist*, I wrote an article asking for your thoughts and comments on a number of elements that I considered of importance to the Society. The first purpose of the present piece is to thank all of you for your responses and suggestions.

Second, I wanted to bring you up-to-date on some of the issues that I raised in my earlier letter. On the issue of the Experimental Biology meeting, I received a number of supportive comments related to my concerns for Experimental Biology and what it might become. I also received what I consider to be a very important letter from **Frank Fitch**, the past-president of FASEB, which you will find in this issue of *The Physiologist*. Fitch makes it very clear that, in my comments to the membership, I had failed to adequately distinguish between the Federation meeting, which no longer exists, and the Experimental Biology meeting, which does exist.

Fitch appropriately takes me to task for confusing these two issues, and in the course of doing so, he highlights a critical issue for the administration of the Society and for the membership to recognize. That is, the Experimental Biology meeting is a free-standing activity which is held under the mark "Experimental Biology" but which arises out of the planning activities of the Experimental Biology board. The Experimental Biology board consists of representatives of physiology (APS), pharmacology (ASPET), pathology (ASIP), nutrition (AIN), and immunology (AAI). There is very little in the charter of that board to define in an exclusive sense how the Experimental Biology meetings are to be constituted. What this means is that we can no longer complain about some external force that limits or negatively influences some quality of the Experimental Biology meeting. There is no such external force other than our leadership and our membership. In this case, "our" refers to the various societies that constitute the Experimental Biology board, and anatomy (AAA), which now participates in the meeting.

Put another way, we can do anything we choose to do in the way of an Experimental Biology Meeting, if the group can agree to a particular proposal. The Society's freedom is essentially limitless in that we can affiliate with Experimental Biology or not, as we choose. The only requirement is that we must make decisions regarding affiliation with Experimental Biology several years in advance for obvious planning reasons.

What I want to emphasize here is that the spring meeting of the American Physiological Society after the year 1999 can be with whomever and under whatever circumstances we choose. But even before that time, the Experimental Biology format provides many inherent freedoms. Currently, the meeting is structured around continuing themes in which the participating societies integrate aspects of their programs. However, there is also the potential for the participating societies to hold fully independent single society meetings housed within separate hotels in the same city at the same time, with a shared exhibits program. No other interactions need occur.

The point of the foregoing is to impress upon myself and you, the reader, the idea that our membership can make a meeting of any form we choose and as good as we wish to make it. To this end, our APS Council Retreat this fall will focus solely on the form and structure of meetings that the Society will hold for the next several years. We will be inviting members of other societies, representatives of the various sections of the Society, and any other interested parties to a discussion of how our meetings should function. Suggestions from you, the members, are solicited and will be given very serious consideration.

At the last meeting of Experimental Biology in Anaheim, I made a rather random, completely nonscientific survey of the attendees, with what, to me, were rather surprising results. I found either substantial enthusiasm for the meeting as it currently exists, or a real concern that many members were systematically presenting their best work at other specialty meetings and saving less exciting work for the Experimental Biology meeting. Obviously, if this is a systematic pattern, it is one that is destructive, and I would like very much to hear any of the membership's thought on this particular question.

In the course of my informal survey, another cherished belief was challenged, and I would like to hear the membership's feeling. The question is: do we have too many symposia? It was brought to my attention that essentially identical talks were given by various invited speakers at symposia held during the course of the meeting, a fact that reflects either a lack of imagination on the part of the organizers, or too many symposia. Also, the feeling was frequently expressed that the investigator-originated presentation is the heart of any really solid scientific meeting and that symposia, in many cases, are getting in the way of the good science. Thoughts?

Another personal concern is the complete dominance of the structure of the meeting by posters. My concern is that this has removed a certain element of dynamism from the meeting, and more importantly, I think that going to an all-day display format has so diluted the attendance at the posters as to severely reduce the level of "excitement" during attendance.

Council will consider these and other issues at the Fall Retreat, and we hope to make the physiology meeting one of the high points on your calendar in the future and can do so only with input from the membership regarding your desires.

Thanks in advance for your help.

Brian R. Duling President This year's Arthur C. Guyton Teacher of the Year Awardee is Heinz Valtin of the Dartmouth Medical School. Valtin was nominated by L. Gabriel Navar, Chair, Department of Physiology at Tulane University Medical School. The award, which is sponsored by the W. B. Saunders Company, provides a cash gift of \$1,000 and covers the awardees meeting attendance expenses. It was presented at the annual dinner of the Teaching Section in Anaheim. This year's award was the second in what is hoped will be an annual event. This year the selection committee was composed of two members of the Teaching of Physiology Section and last year's awardee, however, the committee will eventually be made up of past awardees.

Valtin was selected on the basis of his teaching contributions and many teaching awards. Valtin has regularly taught several highly regarded courses as evidenced by many letters of testimonial from former medical and graduate students. He is the author of three outstanding textbooks which are regarded as models in their field. He has been the director of an NIH training grant and has served on the Program Committee of APS. Valtin's teaching efforts have extended to the international community. He has developed a graduate study curriculum in renal physiology for the IUPS and has been part of an international exchange program to Nicaragua.

# **Partners in Learning**

I am very pleased to receive this Award, and I thank the many persons involved in it: Gabby Navar, for nominating me and for giving that generous introduction; the selection committee for choosing me; the Teaching Section of the American Physiologist Society for establishing the Award; the W.B. Saunders Company for supporting it; and students everywhere for inspiring me.

I have admired Arthur Guyton from afar for many years—for his industry in writing very successful textbooks while simultaneously making his mark in research and in leading an outstanding department. Unlike Guyton, I have been very slow in producing new editions of my books. I learned too late a truth pointed out to me by Fran Ganong: that it is really easier to come up with a new edition every two or three years than, in effect, to write a new book every ten years.

Last year, on the occasion of the first Award to Linda Costanzo, Guyton reminisced with us about his philosophy of teaching. I was struck especially by one item in this delightful talk, probably because I had gone through the same experience. Guyton recounted how he came to write his famous textbook and how, right from the beginning, he had to decide whether to address his writing to students only or whether to focus as well on his peers who would be judging the book. Clearly, he chose the first alternative, which is, I think, the



(L to r): David Bruce, Chair, Teaching of Physiology Section and member Guyton Award Selection Committee; Heinz Valtin, awardee; Allen Rovick, Chair of the Guyton Award Committee.

way to write a textbook, provided that one stays wholly accurate. A former teacher of mine, Scott Swisher, recognized this quality in my books. In a critique, he wrote: "I am going to put this [volume] on a relatively small list of books that I believe have honestly been written for student consumption! It has always saddened me that many people who purport to write student textbooks are acutally writing them to impress their peers." It is a lesson of which we need to remind ourselves consantly, not only as we write but also as we lecture, usually with our peers in the back of the room scrutinizing our every word.

One requirement of this Award is that the recipient prepare a brief essay about education/teaching. Costanzo is a hard act to follow. Her contribution, entitled "Teacher to Student, Student to Teacher: The Wonderful Cycle." (The Physiologist 36:163, 1993) was full of substance and wisdom and not at all a cookbook treatise on "how to teach." Quite the opposite: The article decried "the superficialities of the teaching performance," as extolled in a paper from Medical Education, and it denounced the cynicism and the lack of intellectal honesty displayed by those who strive mainly for a flashy presentation.. Instead, Costanzo dwelled on the benefits of a respectful give-and-take relationship beween teacher and student, on the quality of mutual caring, and on the creation of an educational climate in which conversation is truly two-directional. I have decided to enlarge upon this theme because it is perhaps the essential element in teaching that makes for exciting and lasting schlolarship.

The title of my essay, "Partners in Learning," implies an attitude of mutual respect that is essential to good teaching and learning. It has always struck me that the label for students used so commonly, "kids," seems demeaning — at least at the level of a graduate school. The term carries a connotation of inferior status that is the very opposite of what we should be striving for. In fact, any good teacher at the early elementary level (my wife teaches kindergarten) will tell you that they spend much or most of their working day on the floor or on their knees — not because they are praying (!) but because they want eye contact with their pupils in a manner that signifies a partnership rather than dictatorial authority. By and large, our students are just as intelligent as we are (I am back now at the graduate school level), and if we acknowledge this fact by treating them as colleagues, we can learn a great deal from them. I can honestly say that in each of the 35+ years that I have taught physiology, I have learned something new because of the questions that students asked. That is not to say that I have taught things wrongly; rather, the search for answers has repeatedly led to new depths of understanding that have permitted me to present a topic with greater clarity the next time around. Little wonder, then, that students have sensed my enthusiasm for shared exploration and learning. One of them, writing in support of my nomination for this Award, said: "Heinz relished the tough questions." Perhaps I relished them for selfish reasons, for I knew that I would enjoy the process of mutual learning and that, ultimately, I would benefit throughout new understanding.

The attitude of welcoming questions from students can be greatly facilitated by an open-door policy in our offices. It is important to consider a problem immediately, to seize the moment, so to speak, when a student is excited about the topic.

Up to this point, I have stressed the benefits that we as teachers can derive from the more motivated student, the one who wants to explore material that goes beyond the confines of the course. But the benefits of mutual learning apply as well to students who are struggling to master the fundamentals. In our efforts with these students, we develop new and clearer explanations for the material and thereby improve our teaching. And though that process may seem purely didactic, it too can lead to new insights. But to me, there is an additional and probably more important reason for an open-door policy: often students fear that their questions are stupid, and a welcoming and patient attitude can do much to overcome the embarrassment.

It has been my practice to encourage questions from students during my lectures, for I prefer to clarify points as I go along. In order to stimulate that practice, I usually follow up an early question from a student with an invitation to the class to ask more, pointing out that if one student asks a question, chances are that a large portion of the class will be grateful, having similar concerns but not daring to ask the question for fear of looking dumb. Also, I honor every question by assuming that it was asked sincerely. Although that assumption will be wrong in a few instances, it is far better than to assume the opposite, for to erroneously respond to a question sarcastically, presuming it to have been rhetorical, is not only to cause harm to the student who asked the question but also to undermine the attitude of respect and trust with the entire class.

Another major aspect of good teaching is the ability to be empahetic, to be able to put ourselves in the student's place and to know the difficulty of grasping complicated material on the first encounter. With such knowledge in mind, we will naturally "start at the beginning," define the terms we use, and systematically progress from the simple to the complex. In turn, our "partners in learning," the students, also need to be empathetic (another facet that was pointed out so sensitively by Costanzo). If students understand how much preparation and nervous energy goes into a well-delivered, well-timed teaching session — usually at the scrutiny of our peers — they will reward us with good attendance and attention.

During each of the years that I chaired our department, I opened the major course in medical physiology with a 15minute introduction in which I reviewed the logical sequence of our medical curriculum: first, the mastery of basic science principles; second, the application of those principles to the interpretation of disease; and third, the clinical experience during which, too, the scientific approach to clinical practice should be stressed. Our course at Dartmouth begins in early January, when many first-year students have developed doubts about their choice of a career because they have become discouraged by so much formal classwork - just the right time, that is, to explain (in the words of one student) "to these young medical minds who were raring to get into the clinical years, why the basic sciences are important and what [they, the students, were] to learn from them — to think critically, to think scientifically." Not once did I deliver that introduction without wondering whether it was too preachy; it was only years later that I learned how well it spoke to the students' needs and that it therefore reflected my concern and respect for them.

One of the joys of teaching physiology is that so many of its principles can be applied so directly to an understanding of disease and hence to the benefit of patients. I am always pleased when medical students in their third and fourth years come back to me for advice and clarification on pathological processes. (Only now they often do it by e-mail rather than in person or by phone!) If ever our efforts seem relevant, it is surely at such moments. And the beauty is that we don't have to promote relevance; the realization comes from the students themselves, as they grapple with clinical problems.

There are many rewards in an academic career. Not the least, for me, is the constant association with young people, not only in the classroom but also to help them in planning their careers and with personal problems. Virtually every year, I explore with one or two students the desirability of an academic career for them. I single them out not because they achieved excellent grades on written examinations, but because they showed an unusual degree of scientific curiosity by coming to me with excellent questions. Other rewards include the lighting up of a face when, after much struggle, an insight has been gained. I still recall a student in my office struggling with a problem in acid-base balance when suddenly she exclaimed: "Gee, that's neat!" (in itself, a remarkable statement about acid-base balance!).

Yet another reward is to have been the facilitator of outstanding careers, to observe the successes of persons we taught, the high positions they have attained, the prizes they have won.

And then, perhaps, surprisingly, there is the reward of helping the struggling student, not just by tutoring but through psychological support. Some years ago, a student who had been in academic difficulty during his first year of graduate studies wrote to me as he was about to graduate. He reminded me of a note I had sent to him about his performance in physiology, which, he said, "remains in an envelope with a series of other letters that, unlike yours, did much to inhibit my educational growth." We need to remember constantly what an important psychological boost may be contained in gentle praise, or conversely, what negative force may be conveyed by an ill-timed admonishment.

And then there is the occasional glimpse of fame. In 1981 I received a letter from Jimmy Zalenski, a ten-year-old who had seen an article about the Brattleboro rat in the *Boston Globe*. I quote his letter verbatim and in its entirety: "Dear Dr. Heinz, At school, I write to many people who have accomplished something special. I chose you to write to, hoping to receive a letter and a picture for my album. I am ten years old. Congratulations for studying rats and diseases. With people like you the world is better. Do you like to study rats and diseases? Did you ever get bitten by a rat. Are rats dangeres to man. How big are rats. Do rats have babys. The diseases are they bad cases. Sincerely, Jimmy Zalenski." Of course, I had lots of fun answering Jimmy and sending him a picture of myself holding a Brattleboro rat. That was thirteen years ago; I have been tempted to find out what Jimmy Zalenski is doing now.

And finally, there are rewards like the Arthur C. Guyton Award. Whenever I have received recognition, I have worried lest students have singled me out because I have flirted with popularity. For that reason, I take heart when students find my exams tough, when they describe me as being challenging but fair. I flatter myself to think that I have been honored today for the right reasons.

Remarks delivered by Heinz Valtin on receiving the Arthur C. Guyton Award for Distinguished Teaching of Physiology at the Teaching of Physiology Section dinner, Experimental Biology '94, Anaheim, California, April 26, 1994.

Future Meetings	5
1994	
APS Conference	October 5-8
Mechanotransduction and the Regulation of Growth and Differentiation	Sarasota, FL
Intersociety Meeting	October 29-November 2
Regulation, Integration, Adaptation: A Species Approach	San Diego, CA
1995	
Experimental Biology '95	April 9-13, Atlanta, GA
APS Conference Understanding the Biological Clock: From Genetics to Physiology	July 8-12, 1995 Hanover NH
From Genetics to Thysiology	
APS Conference New Discoveries Within the Pancreatic Polypeptide Family: Molecules to Medicine	November 8-11, 1995 Newport Beach, CA
1996	
Experimental Biology '96	April 14-18, Washington, DC
1997	
Experimental Biology '97	April 6-10, New Orleans, LA

# American Physiological Society 147th Business Meeting

- Time: 5:15 PM., Tuesday, April 26, 1994
- Place: Marriott Hotel, Anaheim, California

#### I. Call to Order

The meeting was called to order by President William Dantzler who welcomed the members to the 147th Business Meeting of the American Physiological Society. Distributed with the agenda were the proposed amendments to the Bylaws (Article III. *Membership*, Sections 1, 5, 7, 9, 10, 11, and 12; Article VI. *Dues*. Sections 1, 2, and 3; and Article X. Society Sections and Affiliations. Section 3, along with a list of recipients of APS awards. President Dantzler selected **Donald Jackson** as parliamentarian.

#### II. State of the Society

It was with great pleasure that Dantzler announced the results of the election of the officers by mail ballot. The membership elected Leonard S. Jefferson, Pennsylvania State University, Hershey, President-Elect (April, 28, 1994 - April 13, 1995). The two newly elected Councillors are Diana L. Kunze (April 28, 1993 - April 10, 1997), Baylor College of Medicine, and Heinz Valtin (April 28, 1994 -April 10, 1997), Dartmouth Medical School, who will assume office at the close of the Business Meeting. They are replacing Helen J. Cooke and L. Gabriel Navar, who are completing three-year terms on Council.

Dantzler said it is the duty of the President of the Society to deliver a State of the Society Address at the annual Business Meeting. He stated, "it is both a privilege and an honor to ad-



President William H. Dantzler

dress the group and to highlight some of the activities of the Society."

The Society moved forward with a number of initiatives as it pursued its primary goal of promoting physiology through its meetings and publications and through its membership, education, and awards programs. During the past year, the APS began the process of implementing the recommendations arising from the 1992 Planning Retreat.

A Task Force on Chapters, under the direction of Peter Lauf, developed procedures to stimulate the creation of local chapters. Council accepted the task force's recommendation and proposes an amendment to the Bylaws to implement a chapter program that would encourage interdisciplinary contacts among research workers interested in the physiological sciences and education of the general public and future physiologists. This Bylaw is to be voted upon shortly.

A Task Force on Membership, under the direction of L. Gabriel Navar, recommended that the categories of associate and associate corresponding membership be altered to make it simpler for active physiologists in today's research environment to become members. The proposed changes in the Bylaws on these issues are also to be voted upon shortly.

A Task Force on Awards and Benefits, under the direction of Brian Duling, our President-Elect, reviewed the Society's awards programs and recommended ways to expand the awards program to benefit the membership. The major new initiatives recommended have been implemented:

- The Research Career Enhancement Awards Program has now made its first award to assist members in good standing to develop new skills and to retrain in developing areas.
- The Distinguished Lectureship series, with one for each of the Society's sections named after a scientist who has made significant contributions to the physiological sciences, is in full operation at this meeting.
- Through a donation from Genentech. Inc., the Society has established an APS-Genentech Postdoctoral Fellowship Award in Mammalian Organ System Physiology. Faced with a shortage of candidates with experience in systems physiology and molecular biology, Genentech is seeking to stimulate interest in systems physiology through development of the fellowship program. This is a very encouraging development for integrative physiology and, judging by the number of high quality applicants, it has a wide appeal that may help to attract additional funding for similar fellowships.

Implementation of the Strategic Plan also saw the Society add several new staff members to assist with new initiatives.

 Efforts to increase the visibility of the Society and to increase marketing of our journals and meetings became the responsibility of Jacqueline McKee, Marketing Coordinator. This office has already brought together and increased marketing efforts for all departments of the Society. These efforts had been ongoing but were beyond the scope of the staff.

- Efforts to ensure that our members have adequate research support and are able to continue to use animal models in research became the responsibility of Alice Hellerstein, Public Affairs Officer. The Society has become much more aggressive in approaching issues of animal use in research and of funding for research, and this will surely accelerate in the future.
- The Society's education and student awards programs were consolidated under the direction of Marsha L. Matyas, Education Officer. In this area, the Society continued its highly successful High School Science Teachers Summer Research Program designed to introduce teachers to scientific research, Porter Physiology Development Program designed to provide fellowship support for underrepresented minority students pursuing a doctoral degree in physiological sciences, Women's Mentoring Program designed to provide women with mentors to counsel them in areas of personal and professional development, and NIDDK Minority Travel Fellowship Program designed to bring underrepresented minority pre- and postdoctoral students to the spring meeting.

In addition, National Science Foundation grant proposals are pending that will enable the Society to initiate new programs involving both students and teachers in K-12. The current reports on these grants are quite favorable and, if funded as expected, will not only help launch these new programs but will help substantially in support of the education office.

Because of inflationary pressures and the need for additional staff to coordinate new program activities, Council approved the first increase in dues since 1982. Dues for regular/corresponding members for 1994-95 have been increased by \$5.00, from \$80 to \$85 per year. This increase does not begin to pay for the increased costs of member benefits, but it helps offset the steady erosion of the Society's income base from contingency funds and helps prevent a crisis in the future. Council also added a new benefit for regular members without cost to the Society by accepting the offer of Eugene Garfield to distribute The Scientist to regular U.S. members at no charge to them or the Society.

The Society's publications have continued to flourish, as we all know, with the numbers of submissions steadily increasing and the standards for publication being ever higher. Their reputation remains outstanding. In keeping with the Society's goal to publish "the highest quality journals" in the most accessible form, the Society continued to explore the development of an electronic format for the APS journals.

- As a first step, the Society introduced APStracts, an electronic publication of abstracts of accepted manuscripts on the APS Gopher Information Server. This began with the American Journal of Physiology: Cell Physiology and will be expanded to all sections of the American Journal of Physiology in July.
- APS also began a collaboration with the University of California, San Francisco, and AT&T/Bell Laboratories to develop an electronic library for the use of UCSF faculty. Called the "Red Sage" project, this three-year pilot program will provide APS with invaluable information on the utilization of electronic journals and will help the Society to develop a cost effective economic model for electronic publishing.

 Preliminary efforts are also underway to produce a CD-ROM version of the Society's journals, and pilot examples are available for review at this meeting.

In addition to the Experimental Biology meetings with our sister FASEB societies, APS has continued with its Strategic Plan to use the APS Conference Program as a means to facilitate scientific exchange at the cutting edge of physiological research. Two highly successful conferences were held in 1993: the Conference on "Physiology and Pharmacology of Motor Control" in San Diego, and the Conference on "Signal Transduction and Gene Regulation" in San Francisco.

Overall, the past year was an exciting one for the Society. APS continued to emphasize the role of physiology in integrating heterogeneous approaches in many disciplines with the ultimate goal of understanding how organisms function at all levels of organization. It also began the process of implementing the goals of the Strategic Plan to fulfill the needs of our members and the research community. The success of these efforts was a reflection of the commitment and participation of our members who have served the Society and the science in so many capacities.

# III. Amendments to the Bylaws

In compliance with the Society Bylaws, the proposed amendments (Article III. Membership, Section 1., Section 5. Affiliate Members, Section 6. Emeritus Members, Section 9. Nominations for Membership, Section 10. Election of Members, Section 11. Voting, Section 12. Expulsion of Members, and Article VI. Dues. Section 1. Annual Dues, Section 2. Non-payment of Dues, Section 3. Retirement; were published in The Physiologist, 36:6, 234, 1993. The proposed amendments to Article X. Society Sections and Affiliations, Section 3. Society Chapters was mailed in the fall.

A motion was unanimously passed by the members approving the amendments to the Bylaws as follows:

#### ARTICLE III. Membership.

Section 1. The Society shall consist of regular, corresponding, honorary, affiliate, emeritus, student and sustaining associate members.

Section 5. Affiliate Members. Persons who are interested in fostering the mission and aims of the American Physiological Society but do not have evidence of scholarly work in the physiological sciences shall be eligible for proposal for affiliate membership in the Society provided they are residents of The Americas.

Section 6. *Emeritus Members*. A regular or corresponding member may apply to Council for transfer to emeritus membership if that person (1) has reached the age of 65 and is retired from regular employment or (2) has been forced to retire from regular employment because of illness or disability. An emeritus member may be restored to regular membership status on request to Council.

Section 7. Student Members. Any student who is actively engaged in physiological work at an institution in The Americas as attested to by two regular members of the Society shall be eligible for proposal for student membership. No individual may remain in this category for more than five years without reapplying for membership.

Section 9. Nominations for Membership. Two regular members of the Society must nominate a person for regular, corresponding, or affiliate membership on forms provided by the Executive Director. In the nomination of corresponding members, a corresponding or honorary member of the Society may substitute for one of the regular members.

a. The Membership Committee shall assess the qualifications of potential regular and corresponding members and recommend nominations to Council.

b. Nominations for affiliate and student membership shall be reviewed

by the Executive Director. If the nominees meet the criteria established by Council, they will be accepted immediately and so notified. The Executive Director will inform Council of the names of new affiliate and student members.

Section 10. *Election of Members*. Election of regular, corresponding, and honorary members shall be by secret ballot by members of Council. A twothirds majority of the members present and voting shall be necessary for election.

Section 11. Voting. Only regular members shall be voting members. Corresponding, honorary, emeritus, student, and affiliate members, shall have the privilege of attending the Business Meeting of the Society but shall not vote.

Section 12. *Expulsion of Members*. The Society reserves the right to revoke the membership of a member found guilty of scientific misconduct.

#### ARTICLE VI. Dues

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

Section 2. Non-payment of Dues. A regular member, corresponding member, affiliate member or student member whose dues are two years in arrears shall cease to be a member of the, unless, after payment of dues in arrears and application to the Council, he/she shall be reinstated at the next meeting by vote of Council. It shall be the duty of the President-Elect to notify the delinquent of his/her right to request reinstatement.

Section 3. *Retirement*. A regular or corresponding member, who has been granted emeritus membership status is relieved from the payment of dues but retains the other privileges of his former membership status, except voting privileges.

# ARTICLE X. Society Sections and Affiliations

SECTION 3. Society Chapters. Upon acceptance of a Statement of Organization and Procedures, a chapter application, and approval by Council, a group of regular members of the Society may form a chapter representing a given region of the country. Each chapter should be incorporated by the organizers of the chapter, under the local laws of the State in which the chapter is located. All chapters will have an obligation to promote, at the local level, the general objectives of the Society, including its goal of interdisciplinary contacts among research workers interested in the physiological sciences and education of the general public and future physiologists.

In the event of dissolution or termination, the chapter council shall, after the payment of all the debts and liabilities of the chapter, convey and transfer any remaining assets to the Society. Under no circumstances shall the Society be responsible or liable for any debts or liabilities of the chapter.

Nothing in a chapter's Statement of Operations and Procedures may be construed as contradictory to the Constitution and Bylaws or Operational Guide of the Society.

Aubrey Taylor inquired about the Bylaw amendment on the "expulsion for members," which is based on scientific misconduct and expressed the opinion that the Society should take a stand on scientific fraud. Dantzler responded that this issue generated lengthy discussion in Council. It was concluded that individuals are elected to membership based on evidence of scholarly work and any demonstration that such scholarly work was based on fraud would automatically lead to expulsion. The Society prefers to have an uncomplicated statement in the Bylaws. If a member is found guilty by a court of law for falsifying physiological work, this is scientific misconduct and reason for expulsion.

## IV. Report on Membership

#### A. Summary of the Membership Status

President-Elect Brian Duling, reported on the status of the Society membership. Since the last spring Business Meeting, the Society has accepted into membership 231 regular, 103 corresponding, 41 associate, 10 associate corresponding, and 96 student members. The current membership of the Society is 7,464, of which 4,881 are regular, 31 honorary, 857 emeritus, 376 corresponding, 769 associate, 63 associate corresponding, and 487 student members. At this meeting, two physiologists, Richard D. Keynes, Cambridge University, and Hermann Passow. Max Planck Institute for Biophysics, Frankfurt, were elected to honorary membership.

#### B. Deaths Reported Since the Last Meeting

The names of those members whose deaths have been reported since the last meeting were read by Duling, and the membership observed a moment of silence in tribute to their deceased colleagues.

#### V. Affairs of the Society

Martin Frank, Executive Director, was grateful to have the opportunity to address the membership. During the past year, the Council strived to initiate new and exciting programs as described by President Dantzler. With the initiation of the official recognition of chapters, he encouraged members to establish chapters and become more involved in education and public affairs activities at the local level.

The Experimental Biology meeting is running smoothly, and the program is much more successful this year. An evaluation form is available at the convention center and the hotel headquarters, and attendees were urged to take the time to complete them, which will be helpful to the societies in organizing a better meeting. In order to build a better scientific meeting reflecting the excellence of physiology, future meetings will be the topic of the next APS Council retreat in November.

In 1995, two **APS Conferences** are scheduled in July and November, "Understanding the Biological Clock: From Genetics to Physiology" in Hanover, July 8-12, and "New Discoveries within the Pancreatic Polypeptide Family: Molecules to Medicine," in Newport Beach, November 8-11.

In closing, Frank recognized the APS staff members, who are the individuals to contact at the APS Headquarters in Bethesda for information on issues of interest and concern to the membership as follows: Linda Buckler, 301-530-7172

Linda Duckici,	501 550 1112
(Membership and M	lectings)
Alice Hellerstein,	301-530-7105
(Public Affairs)	
James Liakos,	301-530-7160
(Business Office)	
Jacqueline McKee,	301-530-7015
(Marketing)	
Marsha Matyas,	301-530-7132
(Education)	
Brenda Rauner,	301-530-7070
(Publications)	
Lorraine Tucker,	301-530-7165
(Executive Office)	
Sam Masri,	301-530-7185
(Subscriptions)	

## VI. Awards

#### A. Ray G. Daggs Award

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

William Dantzler was pleased to announce that the recipient of the 1994 Ray G. Daggs Award is **Ernst Knobil**, who served as president of APS in 1979-1980 (see p. 216).

#### B. Orr E. Reynolds Award

The Orr E. Reynolds Award was established in 1985 in honor of the second Executive Secretary-Treasurer of the Society who served the Society from 1970 to 1985. The award is made annually for the best article submitted by a member of the Society on some aspect of the history of physiology. It is given in recognition of his outstanding contributions to the field of physiology and to the development of the historical aspects of the Society that have been well documented and preserved.

This year, it was an honor for President Dantzler to present the 1994 Orr E. Reynolds Award to Bodil Schmidt-Nielsen for her upcoming book, August and Marie Krogh, Lives in Science and her contribution to the history of physiology. In accepting the award, she thanked The American Physiological Society for the many things it has done for her. She said, "it has been a privilege for me to be a member of this wonderful Society. The members and staff always make me feel so welcome. I am particularly honored to receive the Orr E. Reynolds Award; he was a very good friend."

#### 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.

The Executive Director introduced Chris Filley, who said that his father was an inspiration to him. One of his

father's greatest joys was as an investigator in respiratory physiology at the University of Colorado. Because his father was a member of the APS, the family decided to honor him by establishing APS awards in respiratory physiology and medicine. He expressed pleasure and satisfaction to present the first two awards to Edward C. Dempsey, University of Colorado, for his "investigation involving the role of protein kinase C in pulmonary artery smooth muscle cell proliferative response to hypoxia," and to Robb Glenny, University of Washington, for his "novel approaches to investigating the physiology of pulmonary blood flow heterogeneity in the lung." Each recipient received a \$12,000 check for use in their respective research program, a plaque, and reimbursement of expenses to attend the spring meeting.

#### D. Caroline tum Suden/Frances Hellebrandt Professional Opportunity Awards

Twelve 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 meeting, paid registration, and have access to the FASEB Placement Service. Hannah Carey, former chairperson of the Women in Physiology Committee, assisted the President in presenting the awards (see p. 218).

#### E. Procter & Gamble Professional Opportunity Awards

The Procter and Gamble Company, a multinational, technically based consumer products corporation, provides support for the APS Professional Opportunities Awards. The APS Sections selected 17 predoctoral students, who are within 12-18 months of receiving a Ph.D. degree and presenting a paper as first author at the spring meeting. The President recognized **Ted Logan** for making these awards possible by a generous grant to the Society, and presented \$500 checks to the awardees whose registration fee had been paid through the grant (see p. 219).

#### VIII. Recognition

Councillors Helen J. Cooke and L. Gabriel Navar complete their terms at the close of this meeting. Dantzler expressed pleasure in having had the opportunity to serve on Council with them and recognized their dedication and guidance to the Society.



President Dantzler, Helen J. Cooke and L. Gabriel Navar

Noting that this was **Stanley Schultz**'s last meeting as an officer of the Society, Dantzler remarked that he



William H. Dantzler and Stanley G. Schultz

was personally grateful for Schultz's wisdom and guidance during the past year. He was responsible for moving the Society into the electronic age and for the creation of an information server for the electronic distribution of APS information and publications via the National Research and Education Network/Internet. Dantzler took great delight in presenting Past President Schultz with a plaque commemorating his presidency.

Dantzler then turned the gavel over to **Brian Duling**, University of Virginia, the incoming President of the American Physiological Society. Duling thanked Dantzler for his leadership in guiding the Society during the past year and for his foresight in establishing the Society's new awards programs.



President Dantzler presenting the gavel to incoming President Brian Duling

Duling thanked the members for giving him the opportunity to serve the membership. He stated, "Thanks to the efforts of a whole series of Presidents and Council members, the Society is in a position to do some very special things. It is my opinion that these new initiatives will happen and happen very fast; based on the attendance at this year's Business Meeting, I think you have the same impression.

"Those of you who read The Physiologist know I have some con-

cerns about what's happening with biomedical research in general, and the Society in particular. Everyone recognizes that meetings and publications are what the Society is all about. Publications are doing spectacularly under the direction of Rusty Johnson and Brenda Rauner. The spring meeting and APS Conferences are still a little bit shaky at least, since the formats are new and attendees do not know what to expect.

"The Society needs your help to make the meetings better. Therefore, I would appreciate if you would let me know what you think about this meeting and how it can be improved. With the separation of the Experimental Biology (EB) meeting from FASEB control, we have enormous flexibility, a fact that was not clear to me when I began thinking about the spring meeting. The EB meeting is run by a management committee comprised of representatives from the participating societies, including APS. The Society can decide to meet with EB or not, and can determine what the EB meeting will become in the future. It provides APS with tremendous flexibility. However, if we do not take the initiative and do something, the whole thing will crash. My personal opinion is that we would be crazy to let the EB meeting fall apart. It has gone through a period of correction as it evolved from the FASEB meeting into the EB meeting. Now, we are ready for some new additions to the meeting. What these new things should be and how they should be implemented depends on you. I want the membership to help us decide by providing me with suggestions and thoughts on how to make the EB meeting even better.

"In my article in *The Physiologist*, I invited letters and comments from the membership. I have already received several letters on such topics as education and FASEB. At this time, I encourage you to write. Without input from the membership, we cannot make this into a society that serves you and meets your needs.

"Again, thank you for the opportunity to serve you."

There being no new business, the meeting was adjourned at 6:35 PM, April 26, 1994.

Brian R. Duling President-Elect



APS Council. (Seated l-r): L. Gabriel Navar, Stanley G. Schultz, William H. Dantzler, Brian R. Duling, Helen J. Cooke, Barbara A. Horwitz. (Standing l-r): Heinz Valtin, Mordecai P. Blaustein, G. Neil Granger, Richard J. Traystman, Martin Frank, Frank L. Powell, Jr., Franklyn G. Knox, James A. Schafer

## **APS Membership**

Membership applications may be obtained from APS Membership Services, 9650 Rockville Pike, Bethesda, MD 20814-3991. Applications are reviewed and approved by Council on a regular basis throughout the year.

# Experimental Biology '94

# Anaheim, CA





Registration at EB 94



APS Booth



APS Presidents. (Back row, l-r): Vernon S. Bishop (89-90), A. Clifford Barger (70-71), Robert E. Forster II (66-67), John B. West (84-85), Aubrey E. Taylor (88-89), Brian R. Duling (94-95). (front row, l-r): S. Chien (90-91), W. H. Dantzler (93-94), B. M. Schmidt-Nielsen (75-76), William F. Ganong (77-78), Norman C. Staub (91-92), and Lorraine Tucker.



(L-r): James A. Schafer, Heinz Valtin, Leonard S. Jefferson, L. Gabriel Navar

# Conferences and Meetings

# **Experimental Biology '95**

## Atlanta, GA April 9 - 14, 1995

The American Physiological Society (APS)

## Symposia

- The impact of locomotion on ventilation in tetrapods D.F. Boggs
- Endothelin receptors: role in renal function and dysfunction *D.P. Brooks*
- Osmotic regulation of gene expression *M.B. Burg*
- Hemoglobin-based oxygen carrying solutions: physiologic responses *K.E. Burhop*
- Nutrition and exercise: physiological regulators of reproductive function?
  - J.L. Cameron
- Use of transgenic animal models to study hormone action S.A. Camper
- Role of Ca<sup>2+</sup> in stimulus-response coupling J.R. Dedman
- Role of cyclic ADP-ribose in cellular regulation *T.P. Dousa*
- Physiology of hyperammonemic encephalopathy *R.A. Hawkins*
- Oxygen flux: biologic consequences of adhering to biophysical principles of oxygen supply and its utilization *R.W. Hoyt*
- New developments in the mechanism of regulation of the cerebral circulation *H.A. Kontos*
- Role of mesangial cell ion transport in glomerular physiology and disease *B.N. Ling*
- Oxygen metabolism: gene expression and cellular function D. Massaro and L. Clerch

Estrogenic regulation of vascular function V.M. Miller and L.A. Fitzpatrick

- Endothelial control of renal vascular and tubular interactions L.G. Navar and J.P. Granger
- Role of myosin isoforms in smooth muscle function *R.J. Paul*
- Cardiovascular-renal adaptations to aging J.F. Reckelhoff
- Pro-inflammatory and anti-inflammatory peptides S.I. Said, H.A. Thomas, and E.T. Wei
- Urea transporters: genetic and physiological regulation in kidney, erythrocytes and vasculature J.M. Sands
- Cellular and molecular signals governing energy transduction during exercise S.S. Segal
- Gap junctions D.C. Spray
- Function, characteristics and regulation of volume-sensitive ion channels *K. Strange*
- Molecular and physiological basis of the neural, pigmentary and immunomodulatory actions of melanocortins J.B. Tatro
- CNS control of respiration: role of gamma aminobutyric acid and excitatory amino acids *A.M. Taveira da Silva*
- A perspective on the history of exercise physiology C.M. Tipton
- Forebrain pathways involved in neural and neuroendocrine regulation of cardiovascular function L.D. Van de Kar and M. Blair
- Mechanisms of water flow across biological membranes M.L. Zeidel
- Neural control of the circulation in heart failure and coronary ischemia *I.H. Zucke*r

## Workshops

Localizing extracellular ion flux with vibrating ion-selective probes

J.R. Demarest and P.J.S. Smith

- Applications of caged compounds in physiological systems J.H. Kaplan
- Active learning in large class D. Richardson and R.G. Carroll

# Society for Experimental Biology and Medicine

Role of nitric oxide in physiological and pathologic function S.M. McCann

## North American Society of Biorheology

Leukocyte-endothelial cell interactions D.A. Hammer

## **Biomedical Engineering Society**

Sickle cell interactions with endothelium: implications for vascular pathobiology T.W. Wick

## Section Distinguished Lectureships

- Robert M. Berne Distinguished Lectureship of the APS Cardiovascular Section. Lecturer: *Harris Granger*, Texas A&M Univ.
- Hugh Davson Distinguished Lectureship of the APS Cell & General Physiology Section. Lecturer: *Michael J. Berridge*, Univ. Cambridge, U.K.
- Joseph Erlanger Distinguished Lectureship of the APS Central Nervous System Section. Lecturer: *Donald J. Reis,* Cornell Univ. Med. Ctr.

- August Krogh Distinguished Lectureship of the APS Comparative Physiology Section. Lecturer: Jared Diamond, UCLA.
- Solomon A. Berson Distinguished Lectureship of the APS Endocrinology & Metabolism Section. Lecturer: *Mladen Vranic*, Univ. of Toronto
- Edward F. Adolph Distinguished Lectureship of the APS Environmental & Exercise Physiology Section. Lecturer: Loring Rowell, Univ. of Washington
- Horace W. Davenport Distinguished Lectureship of the APS Gastrointestinal Section Lecturer: *Leonard Johnson*, Univ. of Tennessee
- Carl Ludwig Distinguished Lectureship of the APS Neural Control & Autonomic Regulation Section. Lecturer: Arthur D. Loewy, Washington Univ.
- Carl W. Gottschalk Distinguished Lectureship of the APS Renal Physiology Section. Lecturer: *Steven C. Hebert*, Harvard Univ.
- Julius H. Comroe Jr. Distinguished Lectureship of the APS Respiration Section. Lecturer: Jack Feldman, UCLA.
- Claude Bernard Distinguished Lectureship of the APS Teaching of Physiology Section. *Howard Barrows*, SIU.
- APS Water & Electrolyte Homeostasis Section Distinguished Lectureship. Lecturer: *Pierre Corvol*. Col. of France

## **Special Sessions and Lectures**

APS Bowditch Lecture. Speaker: B. Block, Stanford Univ.

Physiology in Perspective—The Walter B. Cannon Memorial Lecture

Career Opportunities in Physiology Workshop

APS Past President's Symposium: Renal Tubular Transport of Organic Ions. W. Dantzler, Univ. of Arizona

**APS Public Affairs Symposium** 

Women in Physiology Committee's Mentoring Workshop

High School Biology Students-Teachers Workshop

# Nominations for Honorary Membership

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

# Call for Symposia Topics-Spring 1996

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

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

Symposium proposals are welcome for the annual spring meeting, Experimental Biology '96. Symposia will be considered for presentation as part of the traditional APS symposia program that highlights areas of interest to the physiological community. In addition, symposia will be considered for inclusion in the cross-society program focusing on one of eight theme areas: Cardiovascular Biology; Respiratory Biology; Epithelial Cell Biology; Cell Injury, Inflammation and Repair; Metabolic Processes in Health and Disease; Neurobiology; Regulation of Growth and Development; and Signal Transduction.

Proposals should be submitted to the appropriate Section Program Advisory Committee representative. All proposals should include the following: 1) title; 2) organizer and address; 3) abstract (150 words); 4) number of halfday sessions required; 5) names of session chairperson(s); 6) presentorsdiscussants—approximately six per half day (list the participant's name and title of presentation as it would appear in the program); 7) brief biographical sketch (2-3 sentences) of each speaker in the symposium; and 8) budget information. Symposia are evaluated on the basis of their scientific merit. Organizers will be notified shortly after the 1995 Spring Meeting on acceptance of their proposal.

#### **Central Nervous System**

Celia D. Sladek Dept. of Physiology UHS/The Chicago Medical School 3333 Green Bay Road North Chicago, IL 60064 708-578-3280 x352 fax: 708-578-3265

#### Comparative

Stephen H. Wright Dept. of Physiology Univ. of Arizona College of Medicine Tucson, AZ 85724 602-626-4253 fax: 602-626-2383

#### **Endocrinology & Metabolism**

Jessica Schwartz Dept. of Physiology Univ. of Michigan 6815 Med. Sci. Bldg. II Ann Arbor, MI 48109-0622 313-763-2562 fax: 313-936-8813

# Environmental & Exercise Physiology

Charles M. Tipton Dept. of Exercise & Sport Sciences Univ. of Arizona Tucson, AZ 85721-0001 602-621-6992 fax: 602-621-8170

## **Epithelial Transport Group**

John Cuppoletti Dept. of Physiology & Biophysics Univ. of Cincinnati Col. of Med. 231 Bethesda Ave., ML 576 Cincinnati, OH 45267-0576 513-558-3022 fax: 513-558-5738

# Section Program Advisory Committee Representatives

#### Chair

Heinz Valtin Dept. of Physiology Dartmouth Medical School Hanover, NH 03755-3836 603-650-1719 fax: 603-650-1130

#### Cardiovascular

Diana L. Kunze Molec. Physiology & Biophysics Baylor College of Medicine One Baylor Plaza Houston, TX 77030 713-798-5702 fax: 713-798-3475 Frank C-P. Yin Cardiology Division Hopkins Hospital 530 Carnegie Bldg. Baltimore, MD 21205 410-955-5999 fax: 410-614-1417

#### **Cell & General**

Jack H. Kaplan Dept. of Physiology Univ. of Pennsylvania 37th & Hamilton Walk Philadelphia, PA 19104-6085 215-898-5035 fax: 215-573-5851

#### Gastrointestinal

Patrick Tso Dept. of Physiology LSU Medical Center P.O. Box 33932 1501 Kings Highway Shreveport, LA 71130 318-674-6016 fax: 318-674-6005

## **History Group**

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## Hypoxia Group

Reed W. Hoyt Altitude Research Division U.S.A.R.I.E.M Kansas Street Natick, MA 01760-5007 508-651-4802 fax: 508-651-5298

# Neural Control & Autonomic Regulation

Eileen M. Hasser Dept. of Vet. Biomedical Science Col. of Veterinary Medicine Univ. of Missouri Columbia, MO 65211 314-882-6125 fax: 314-882-2950

#### Renal

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Leon C. Moore Dept. of Physiology SUNY Hlth. Sci. Ctr. Stony Brook, NY 11794-8661 516-444-3047 fax: 516-444-3432

### Respiratory

Aron B. Fisher Inst. for Environ. Medicine Univ. of Pennsylvania School of Medicine John Morgan Building Philadelphia, PA 19104-6068 215-898-9108 fax: 215-898-6120

## Teaching

Philip A. McHale Dept. of Physiology & Biophysics Univ. of Oklahoma Hlth. Sci. Ctr. P.O. Box 26901 Oklahoma City, OK 73190 405-271-2316 fax: 405-271-3032

## Water & Electrolyte Homeostasis

Ian A. Reid Dept. of Physiology Univ. of California San Francisco, CA 94143-0444 415-476-1585 fax: 415-476-4929

## **Myobio Group**

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## **Clinical Physiology Group**

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Aviad Haramati Dept. of Physiol. & Biophysics Georgetown Univ. School of Med. 256 BSB Reservoir Road, NW Washington, DC 20007-2187 202-687-1021 fax: 202-687-7407

# **Guest Societies**

#### **Biomedical Engineering** Society

Dr. Vincent Turitto Biomedical Engineering Dept. Memphis State Univ. Memphis, TN 38152 901-678-4299 fax: 901-678-4180

# Society for Experimental Biology and Medicine

Samuel M. McCann Dcpt. of Physiology UT Southwestern Med. Ctr. 5323 Harry Hines Blvd. Dallas, TX 75235-9040 214-688-2341 fax: 214-688-7983

# North American Society of Biorheology

Giles Cokelet Dept. of Biophysics Univ. of Rochester Med. Ctr. 601 Elmwood Ave. Rochester, NY 14642 716-275-5283

# **Call for APS Conference Topics**

For the past several years, the American Physiological Society has been transforming its fall meeting from one encompassing all aspects of physiology to one embracing a clearly defined theme or topic. Culmination of that transition has been the scheduling of the APS Conferences for 1993– 1996.

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

Listed below are more specific guidelines to follow in organizing an APS Conference. Any questions regarding the organization of such meetings should be directed to Heinz Valtin, Chairperson, APS Program Committee, or Martin Frank at the APS office. The deadline for proposals to be considered for 1996 is February 5, 1995.

# Guidelines for APS Conference Proposals

There is no special form. Applicants may organize their proposals in whatever format they deem best. By and large, however, the information listed in these guidelines should be supplied.

Up to two (rarely three) Conferences will be selected annually, to be held between June and December of a given year. Selections are made in the following way: each proposal is scored and ranked by members of the *Program Advisory Committee* (PAC) and the *Program Committee* (PC) of The American Physiological Society (APS); a recommendation for the two Conferences to be held is made to the Council of APS; final approval of each Conference is made by the Council. The organizer of the proposed conference must give a formal presentation at the Program Advisory Committee Meeting which is scheduled on the first day of the Experimental Biology meeting.

Each APS Conference should deal with a circumscribed topic, which may be narrow or broad. Although the ideal size is 300-500 attendees, there is great flexibility in this number; except under unusual circumstances, the conference should not be so large as to require the scheduling of simultaneous sessions. Organizers should consider the suitability of a multidisciplinary approach to the topic, as well as different levels of investigation that might range from molecular through systems physiology.

## Title

If possible, please include the term "physiology" or "physiological".

## **Organizer(s)**

An APS Conference may be organized and proposed by one or more persons. Somewhere in the application, the following information should be supplied for each organizer: name, including complete first name, not just initials; address; telephone, fax, and E-mail numbers; a *very brief* biographical sketch (up to four lines), which summarizes the credentials of the organizer(s) for leading the Conference.

## **Background and Rationale**

What is the history of the topic? Are there particular advances in the topic that warrant an APS Conference now? When was a conference last held on this topic? Is a new or unique approach to the topic envisioned for the Conference? What is the degree of current interest in the topic; is it international in scope? Are the main 'players' in this field included in the proposal?

## **Dates and Location**

All APS Conferences are held between June and December of a given year. The duration should be 3 to 4 days, and a Saturday stayover should be scheduled, to permit low air fares. A pleasant, collegial setting is encouraged. Bear in mind: the weather; recreational facilities (for accompanying families as well as for attendees); common and inexpensive dining facilities; reasonable and inexpensive accommodations, especially for young participants, such as graduate students and postdoctoral fellows. Although often, a university campus meets these requirements best, organizers should feel free to suggest other venues, including conference 'resorts' and major city hotels. The rationale for the choice of dates and location should be explained.

The APS discourages the temptation to append an APS Conference to a national or international meeting in order to take advantage of major personages who will already be attending the other meeting. Despite the higher cost of bringing the key investigators to APS Conferences, the APS wants each Conference to stand on its own, with the clear identity as an APS-sponsored meeting.

Once a venue and dates have been selected, the APS Office in Bethesda will assume the full management of the

Conference, including all financial and logistical aspects, publicity, as well as technical exhibits if appropriate.

# Sections, Specialty Groups, Other Societies

It is best, though not essential, if a proposal for an APS Conference is submitted under the auspices of one or more Section or Special Interest Group of the Society. A multidisciplinary approach to the chosen topic is encouraged, so that it is not uncommon for a given Conference to draw participants from several Sections and Interest Groups, as well as from societies other than the APS. Primary responsibility for the Conference, however, will rest with the organizers working through the APS.

#### Structure

With possibly rare exceptions when a large meeting is contemplated, there should be no simultaneous sessions.

The reviewers can best judge the scientific merits of a proposal if a fairly detailed, though tentative, schedule is given. What subtopics are to be discussed each day? How long will the sessions last? Who will be the speakers? What will be the format of each session plenary lecture, symposium, posters, panel discussion, volunteered slide presentations, others?

How have the invited participants been chosen? Active roles (including presentations) for young faculty, graduate students, and postdoctoral fellows is encouraged. Has due consideration been given to the inclusion of women and minorities?

For each invited participant, list: full name; current position; title of presentation; whether or not they have been contacted. A majority of the speakers to be invited should be contacted in a tentative manner, making clear to them that final invitations are subject to the proposal being accepted by the Council of APS. Inasmuch as a proposal is prepared more than two years in advance of a Conference being held, as much as 25% of the slots can be left open, to allow for later insertion of new developments and speakers.

It is very helpful to the reviewers of the proposal if a summary schedule of the proposed program is supplied (e.g., in the form of a grid/calendar).

#### **Financial Support**

Each APS Conference is underwritten fully by the APS. Once a given proposal has been accepted by the Council of the APS, the organizer(s) will be contacted for suggestions of organizations or societies that may support the Conference. While the help of the organizer(s) in raising funds will be welcomed, all fund-raising efforts will be coordinated by the APS.

Each proposal will be scored and ranked initially on its scientific and educational merit, without regard to cost. For that reason, statements regarding specific sources of funding, financial feasibility, or detailed budgets are not solicited as part of the proposal.

### Deadline

All proposals must be received in the APS Membership Services Department by February 15, slightly more than two years before the Conference is to be held. For example, a proposal for a Conference to be held in October, 1998 must reach the office in Bethesda by February 15, 1996.

## Send proposals to:

Membership Services Department The American Physiological Society 9650 Rockville Pike Bethesda, Maryland 20814-3991 voice: 301-530-7171 fax: 301-571-8313 E-mail: linda@aps.mhs.compuserve.com

# Education

# 1993 Summer Research Teachers Take Active Role at Experimental Biology '94

How do you top an exciting summer of physiology research? By presenting your results at the Experimental Biology meeting. Two of the 1993 Summer Research Teachers were first authors on accepted abstracts and presented their findings at the Anaheim meeting: Linda West Hill (research mentor, Aubrey Taylor, University of South Alabama College of Medicine) and Mary Mauer (research mentor, Kim Barrett, University of California, San Diego).

All of the 1993 Summer Research Teachers attending the conference had an exciting week of scientific sessions, dinners and receptions, and general brainstorming with other research teachers. Several Research Teachers made presentations at the special workshop for local high school teachers and students (see separate article). The Research Teachers were honored at a luncheon attended by members of Council, the Education Committee, and their summer research hosts.



1993 Summer Research Teachers. Back row, l-r: Nancy Pelaez, Bobby Pierce, Bob Melton, Nichole Scott, Mary Mauer, Denise St. Clair. Front row, l-r: Mark Collins, Linda West Hill, Inez Archie, David Honeycutt. Not pictured: Susan Boehm, David Smith.

# APS Members Highlight Physiology in Action for Local Teachers and Students

For the third year, the APS sponsored a special workshop for local high school science teachers and their students during the Experimental Biology meeting; this year's program was coordinated by the APS Education Committee. More than 70 teachers and students from the Anaheim area attended the full-day workshop. The morning session focused on research updates, research in action, and research technology with presentations on: membrane transporters (Stanley G. Schultz, University of Texas Medical School); the math, physics, and biology of breathing (Donald T. Frazier, University of Kentucky); and laser tweezers and laser scissors (Jeff Harvey and Larry Keenan, Cell Robotics, Inc., Albuquerque, NM). Teachers and students then shared a box lunch and a tour of the exhibits and posters with volunteers from the APS Teaching Section.

The afternoon included separate workshops for teachers and students. Students did mini-experiments in cardiovascular physiology, led by Stephen DiCarlo (Northeastern Ohio University) followed by a mock murder trial using DNA fingerprinting evidence in which Barry Peterson (University of Texas Health Science Center) portrayed the judge, prosecutor, and defense attorney. Students acted as the jury and learned the difference between errors, mistakes, and fraud in scientific research. Finally, students heard about the variety of careers in physiology from Joey P. Granger (Mississippi Medical School) and, from a panel Granger's graduate students, learned about the diverse pathways that can lead to graduate studies in physiology.

In the separate afternoon workshop for teachers, three of the 1993 Summer Research in Physiology award winners presented activities developed for their classroom as a result of their research experiences. Nancy Pelaez (Northwestern High School, Indianapolis) described how her students explored the range of careers available in a physiology department — from the custodian to the scientific illustrator to the faculty member — for their educational requirements, the type of work they do, and the control they have in deciding what work they want to do. The activity motivated many students in her classes who had minimal aspirations for college degrees to recognize that there are a variety of jobs in

(continued on p.187)

# 1994 Summer Research Teachers Experience Physiology Research

Thanks to the APS Science Teacher Summer Research Program in Physiology, 12 high school and middle school science teachers are experiencing a very different kind of summer break — conducting research in physiology laboratories under the guidance of APS members. The program, in its fifth year, provides science teachers with 8-10 week experiences in modern physiology research. The 12 teachers, selected in a national competition, were awarded grants that include up to a \$5,000 stipend plus \$750 to support the teachers' attendance at the April 1995 Experimental Biology meeting in Atlanta where they will participate in a workshop and be honored at a luncheon.

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

• Cynthia D. Alvarado, Southside High School, San Antonio, TX; Walter F. Ward, University of Texas Health Science Center, San Antonio, TX.

• Shirley Burton, John H. Woodson Jr. High School, St. Croix, VI; Melvyn Lieberman, Duke University Medical Center, Durham, NC.

• Diana J. Fisher, Perth Amboy High School, Perth Amboy, NJ; Judith A. Neubauer, UMDNJ-Robert Wood Johnson Medical School, New Brunswick, NJ.

• Susan Fountain, Akimel Aal Middle School, Tempe, AZ; Jeffrey R. Hazel, Arizona State University, Tempe, AZ.

• Brenda Gates-James, Wayne High School, Fort Wayne, IN; Richard Stephen Manalis, Indiana University-Purdue University, Fort Wayne

• Charles E. Geach, Irvin High School, El Paso, TX; R. Jorge Zeballos, William Beaumont Army Medical Center, El Paso, TX.

• Joseph Paul Layshock, Newton Falls High School, Newton Falls, OH; Stephen E. DiCarlo, Northeastern Ohio Universities College of Medicine, Rootstown, OH.

• Mary Kay LeBlanc, Blenk High School, Gretna, LA; L. Gabriel Navar, Tulane University School of Medicine, New Orleans, LA.

• Patricia S. Lisoskie, Tumwater High School, Tumwater, WA; Michael P. Hlastala, University of Washington, Seattle, WA.

• Elsie Elizabeth Scott, La Cueva High School, Albuquerque, NM; William R. Galey, University of New Mexico, Albuquerque, NM.

• Velma J. Snow, Northwestern High School, Detroit, MI; Jeffrey L. Ram, Wayne State University, Detroit, MI.

• Sister Mary Jo Stein, Elizabeth Seton High School, Bladensburg, MD; Mordecai P. Blaustein, University of Maryland School of Medicine, Baltimore, MD.

# Volunteers Needed To Host a Summer Research Teacher

Last year, the APS received calls from more than 40 teachers who wanted to apply for our Science Teacher Summer Research in Physiology Program but did not know how to get in touch with an APS member who might be interested in working with them. Help us to help them in making the connection! The Summer Research Program provides \$5,000 fellowships for teachers to do research in the laboratories of APS members (see above). If you would be interested in having a teacher work in your laboratory for the summer or would be willing to help refer teachers to physiologists in your area, please complete and return the form below. If a teacher in your geographic area expresses interest in the program, we will refer him/her to you to discuss possible research projects.

YES, I MIGHT BE INTERESTED IN HAVING A SUMMER RESEARCH TEACHER WORK IN MY LABORATORY!

AME
DDRESS
3LEPHONE
NX
1AIL
turn completed form to Marsha Lakes Matyas, APS Education Officer, American Physiological Society, 9650 Rockville ke. Bethesda, MD 20814-3991, fax: 301-571-8305, email: marsha@aps.mhs.compuserve.com, phone 301-530-7132.

# **APS Awards Prizes at 45th ISEF**

The American Physiological Society participated in the 45th International Science and Engineering Fair (ISEF), Birmingham, Alabama, May 8-14, 1994, by judging and making special awards. The ISEF, the "World Series" of science fairs, is held annually and marks the culmination of a selection process involving thousands of schools and regional fairs in both the United States and a number of other countries. In Birmingham, APS joined with 64 other professional organizations making awards in a variety of disciplines.

The APS selection committee consisted of P. Darwin Bell, Kathleen Berecek, Raymond A. Frizzell, Gilbert R. Hageman, James A. Schafer, and Ferdinand Urthaler, from the Department of Physiology and Biophysics, University of Alabama at Birmingham; and Marsha L. Matyas, American Physiological Society. The selection committee had the difficult task of first identifying which of the more than 800 ISEF finalists had projects related to the physiological sciences. Narrowed to a potential pool of 130 projects, the committee then had to visit and interview the candidates in order to select the awardees.

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

The recipients of the Honorable Mention Awards were: Maya Culbertson, Gold Beach Union High School, Gold Beach, Oregon for Inhibiting Gene Expression Through the Use of Antisense DNA Oligos; Mark Matsos, Assumption Secondary School, Burlington, Ontario, Canada for A Lactate-Acetyl Shuttle: Acetylcarnitine Formation; and Pei-Yun Wu, Thomas S. Wootton High School, Rockville, Maryland for Transcriptional Activity of Prodynorphin Gene Promoter Using Transient Transfection Analysis. Ms. Wu also won a second place award in the overall biochemistry competition.

The first prize recipient was Rakhi Chaudhuri, Maumee

Valley Country Day School, Toledo, OH for *The Relationship* of Gap Junctional Intercellular Communication (CJIC) to Tumor Growth and Formation. Ms. Chaudhuri also won a third place award in the overall Medicine and Health competition.

The judging committee regretted that it was only able to make four awards, because there were so many outstanding projects that deserved recognition. Although the large majority of student projects at the ISEF dealt with life sciences, only 13 of the 65 groups making special awards were life science organizations. This makes the role of the American Physiological Society even more critical to the many students who committed much time and effort to their research projects in life sciences fields. The impact of other APS education activities was also reflected in the students' research projects: One honorable mention winner was a student of one of our previous Science Teacher Summer Research Program Fellows.



APS Education Officer M. Matyas presents awards to (1 to r) R. Chaudhuri, M. Matsos, P. Wu, and M. Culbertson (Photo credit: FocusOne).

# Moving?

If you have moved or changed your phone, fax, or eMail number, please notify the APS office at

301-530-7171 or eMail to internet: kristin@aps.mhs.compuserve.com

Be sure to include your name, degree(s), title, department, institution, complete mailing address, telephone and fax numbers, and eMail address.

#### **APS MEMBERS HIGHLIGHT PHYSIOLOGY IN ACTION** (continued from p. 184)

science fields...and that education is the key to doing the type of work you think is most interesting!

Nichole Scott (City High School, Iowa City, IA) led teachers through a hands-on epidemiology activity where participants must track down the initial carrier of a disease spread by person-to-person contact. Finally, David Honeycutt (Santa Rita High School, Tucson, AZ) demonstrated a computer program of cell micrographs for classroom use which he developed as a result of his research experience.

Feedback from teachers and students attending the program was very positive. One teacher stated, "A rare chance to see high level science at its best. Not many high school teachers have this type of exposure. Keep it up..." Students were especially excited to talk individually with physiologists during the lunch break and tours: "I liked how we were able to talk with the APS members personally and ask them questions about schools, careers, etc. They were really neat and encouraging..." As always, the favorite parts of the workshop were those where students and teachers were actively involved in the presentations.

The Education Committee currently is planning next year's workshop during Experimental Biology '95 in Atlanta. APS members who are interested in being a lunch tour guide, making a presentation, or attending the workshop can contact Marsha Matyas, APS Education Officer at 301-530-7132 or email: marsha@aps.mhs.compuserve.com.

# Membership

Thanks to the action of members in attendance at the APS Business Meeting on Tuesday, April 26, the Society is pleased to encourage its members to consider organizing a chapter of The American Physiological Society in their local area. The APS Chapter Program is designed to promote interdisciplinary contacts among research workers interested in the physiological sciences and

# **APS** Initiates Chapter Program

education of the general public, including future physiologists. Chapters of the Society should represent a given region of the country and must consist of at least 20 Regular members. As an incentive to the formation of an APS Chapter, the Council has allocated some modest start-up funds and will work with the Chapter to support an APS lecturer at their annual meeting.

# **Membership Status**

#### March 1994

Regular	4,881
Emeritus	857
Honorary	31
Corresponding	376
Associate	769
Student	487
Associate Corresponding	63
Total	7,464

## **Newly Elected** Members

The APS Council elected the following to membership at its 1994 Spring Meeting, Anaheim, CA.

## Honorary

Richard D. Keynes Physiological Laboratory, Cambridge

Hermann Passow Max Planck Institute for Biophysics

## Regular

Uri Alon Children's Mercy Hospital **Ohio State University** Sharon P. Andreoli Indiana University Carl B. Baron University of Pennsylvania Wallace D. Berry University of Georgia George T. Blevins, Jr.

Stephen E. Alway

1

University of Arkansas

George W. Booz Geisinger Clinic

Jean-Pierre Bourreau University of Hong Kong

Eileen H. Breslin University of California, Davis

Johnny E. Brian, Jr. University of Iowa Hospital and Clinics

**Che-Ping Cheng** Bowman Gray School of Medicine

George J. Christ Albert Einstein College of Medicine

Currently, there are local/regional physiological societies in Ohio, Oklahoma, and Detroit. While they are not currently official APS chapters, it is Council's hope that they will elect to become official chapters. APS regular members interested in organizing chapters in their region should contact the APS Executive Director for information and application materials.

Joseph A. Chromiak Miriam Hospital

Lidia E. Costa CONICET, University of Buenos Aires

Conrad L. Cowan **Burroughs Wellcome Company** 

Richard M. Cowett Women & Infants Hospital of Rhode Island

Timothy A. Cudd University of Florida

Louis J. Dell'Italia University of Alabama, Birmingham

Jean-Pierre Despres Laval University

John P. Donoghue **Brown University** 

Robert Dudley University of Texas, Austin

David H. Ellison Yale University

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Jean-Pierre Despres Laval University

John P. Donoghue Brown University

Robert Dudley University of Texas, Austin

David H. Ellison Yale University

Walter E. Finkbeiner University of California, San Francisco

Nicholas A. Flavahan Johns Hopkins University

Joanna Floros Pennsylvania State University

James K. Foskett Hospital for Sick Children

Jacob E. Friedman Case Western Reserve University

Nori Geary New York Hospital, Cornell Medical Center

Frank A. Gesek Dartmouth Medical School

Robert J. Gillies University of Arizona

Robb W. Glenny University of Washington

Elise P. Gomez-Sanchez Harry S. Truman V.A. Medical Center

Dorothy A. Hanck University of Chicago

Raymond C. Harris Vanderbilt University

Meredith Hay University of Texas, San Antonio

Pingnian He University of California, Davis

Burton Horowitz University of Nevada

Patricia D. Hurn Johns Hopkins Hospital

Raymond E. Ideker Duke University

Donald E. Ingber Harvard Medical School Rodrigo A. Iturriaga Catholic University of Chile

Meyer B. Jackson University of Wisconsin

Damir Janigro Harborview Medical Center

Najma H. Javed Ohio State University

E. Heidi Jerome University of California, San Francisco

Michael W. Kalichman University of California, San Diego

Pushpa S. Kalra University of Florida

William H. Karasov University of Wisconsin

Ira S. Kass SUNY, Brooklyn

Jane A. Kent-Braun University of California, San Francisco

Orly F. Kohn University of Connecticut

Bruce C. Kone University of Florida

Jeffrey I. Kreisberg University of Texas, San Antonio

Kris T. Kruse-Elliott University of Wisconsin

John F. Kuemmerle Medical College of Virginia

Rakesh C. Kukreja Medical College of Virginia

Richard J. Lang Monash University Jeffrey B. Lansman University of California, San Francisco

Fuad Lechin Central University of Venezuela

Edward D. Lewandowski Massachusetts General Hospital

Stephen B. Liggett University of Cincinnati

Lu E. Limbird Vanderbilt University

Chun K. Loh UMDNJ-New Jersey Medical School

Kirsten M. Madsen University of Florida

Eve E. Marder Brandeis University

Mark L. Mayer National Institute of Child Health and Human Development

Richard D. McCabe University of Mississippi

James E. Melvin University of Rochester

Mark J.S. Miller Louisiana State University

Nicole M.L. Morel Boston University

Leif D. Nelin Zablocki V.A. Medical Center

Mark T. Nelson University of Vermont

David G. Nichols Johns Hopkins Hospital

Mitsushi Okazawa St. Paul's Hospital

Roy C. Orlando Tulane University

John W. Osborn University of Minnesota

Philip T. Palade University of Texas, Galveston

Paula E. Papanek Medical College of Wisconsin

Ian Parker University of California, Irvine

Ronald M. Payne Washington University

Michael W. Peterson University of Iowa

Marian R. Piano University of Illinois, Chicago

Daniel K. Podolsky Massachusetts General Hospital

Hector Rasgado-Flores University Health Sciences/Chicago Medical School

John E. Repine Webb-Waring Institute

Juan G. Reyes Catholic University of Valparaiso

Eliane B. Ribeiro Paulist Medical School

Robert C. Ritter Washington State University

Enrique J. Rodriguez-Boulan Cornell University

Marschall S. Runge Emory University

Michael D. Schneider Baylor College of Medicine

Jan E. Schnitzer Beth Israel Hospital

Craig M. Schramm Children's Hospital of Philadelphia Jean C. Seagrave Lovelace Institutes

Robert E. Shangraw Oregon Health Sciences University

James A. Shayman University of Michigan

Michael P. Sheetz Duke University

Don D. Sheriff University of Washington

Michael Anthony Shetzline Duke University

Xiangrong Shi University of North Texas

Frederick E. Sieber Johns Hopkins Hospital

Pravin C. Singhal Long Island Jewish Medical Center

Lawrence I. Sinoway Milton S. Hershey Medical Center

Karl L. Skorecki University of Toronto

Alan C. Spector University of Florida

Francis G. Spinale Medical University of South Carolina

Daniel I. Spratt Maine Medical Center

Mark G. Stewart SUNY, Brooklyn

Jerry N. Stinner University of Akron

Donald B. Stratton Drake University

Arnold W. Strauss St. Louis Children's Hospital Joseph M. Szewczak Deep Springs College, Dyer, Nevada

Gavin O. Thurston University of British Columbia

Gervais Tougas McMaster University

Min-Fu Tsan Stratton V.A. Medical Center

Vicky L. Tucker University of California, Davis

Catherine F.T. Uyehara Tripler Army Medical Center

Nosratola D. Vaziri University of California, Irvine

Stefano Vicini Georgetown University

Jian-Ying Wang University of Tennessee

Ning Wang Harvard School of Public Health

Philine Wangemann Boys Town National Research Hospital

Michael E. Ward Royal Victoria Hospital, McGill University

Christopher M. Waters Northwestern University

Mitchell A. Watsky University of Tennessee

Joel M. Weinberg University of Michigan

Harvey P. Weingarten McMaster University

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# Publications

# Physiological Reviews European Committee Meets in Stockholm

On Friday, May 19, the annual *Physiological Reviews* European Committee meeting was held in Stockholm, Sweden. R. Green, European Committee Chairman, presided over the meeting. T. Claussen, C.A.R. Boyd, C. Bauer, S. Grillner, J. Bures, and B. Kanner attended as Committee members. W.F. Boron, new Editor of the journal, and B.B. Rauner, Publications Manager for the Society, also attended.

The European Committee provides almost half of the articles published in PRV and, with the American board, is instrumental in maintaining the quality of the Journal by its choice of topics and authors. The day-long meeting was very productively spent monitoring the progress of already invited reviews and discussing new suggestions for future invitations brought forward by Committee members. On behalf of the Society, Boron expressed appreciation to Green for a well-run meeting and to Grillner of the Karolinska Institute for taking care of the local arrangements in such an efficient and hospitable manner.



Top row (l-r): R. Green, J. Bures, C. Bauer, T. Claussen, S. Grillner, C.A.R. Boyd. Bottom row (l-r): W.F. Boron, B. Kanner.

## Scientists Are Parents, Too!

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

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

## **FASEB Defines Animal Use Principles**

Representatives of the nine FASEB member societies met in Bethesda, June 9-10, and agreed to adopt a statement of principles for the use of animals in research and education. APS Animal Care and Experimentation Committee Chair **J.R. Haywood** co-chaired the conference. ACE Committee member **Jeffrey L. Osborn** also represented the Society. The conferees' recommendation will be forwarded to the FASEB Board for its approval.

## FASEB Statement of Principles For the Use of Animals in Research and Education

The Federation of American Societies for Experimental Biology (FASEB) affirms the essential contribution of animals in research and education aimed at improving the health of both humans and animals. The role of animals remains critical in understanding the fundamental processes of life, and in developing treatments for injury and disease. Members of the constituent Societies of FASEB believe that the use of animals in research and education is a privilege. This imposes a major responsibility to provide for their proper care and humane treatment. Good animal care and good science go hand-in-hand.

Therefore, the members of the constituent Societies of the Federation of American Societies for Experimental Biology support the following principles:

- All work with animals shall be designed and performed in consideration of its relevance to the improvement of human or animal health and the advancement of knowledge for the good of society.
- The acquisition, care and use of animals must be in accordance with applicable federal, state and local laws and regulations.
- Each institution is responsible for providing a review procedure to assure that the use of animals in research

and education conforms to the highest ethical, humane and scientific standards.

- The minimum number of appropriate animals required to obtain valid results should be used. Good science demands judicious choices of appropriate methods, such as animals, computer simulations, or tissue and cell cultures.
- Animals shall be housed and maintained under conditions appropriate to their species. Veterinary medical care shall be available.
- Provision shall be made for the training and education of all personnel involved in the care and use of animals.
- Sound scientific practice and humane considerations require that animals receive sedation, analgesia or anesthesia when appropriate. Animals should not be permitted to suffer severe or chronic pain or distress unnecessarily; such animals should be euthanized.

In supporting these principles, it becomes the responsibility of the members of the Constituent Societies of FASEB to educate the public about the role of animals in understanding life processes and disease, and their vital contribution to human and animal health.

## **FASEB** Adopts Resolution on Space Station

FASEB has gone on record against using biological research to justify construction of the space station thanks to a resolution approved by the APS Public Affairs Committee.

Meeting in Anaheim, the APS committee drafted a resolution, later approved by the Society's Executive Cabinet, which opposes the use of biological research as a major justification for the space station. The resolution states, "If Congress or the Administration feels that a space station is important for national prestige or other purposes, then physiological research sponsored by NASA to maintain the well being of astronauts is warranted."

## House Panels Draft Funding Recommendations

The House Appropriations Subcommittee for Labor-HHS-Education has recommended that NIH be provided with \$11.322 billion for FY 1995. This amounts to \$384 million more than NIH's FY 1994 appropriation, or an increase of 3.5 percent. However, the total falls \$150 million below President Clinton's FY 1995 budget proposal for NIH. Most NIH components got about a 3 percent increase over their FY 1994 funding levels. The National Center for Genome Research got a 19.6 percent increase, the Fogarty Center was increased by 12.2 percent, the National Center for Research Resources and the Office of the Director were increased by 7.9 percent and 7.8 percent, respectively, and the National Library of Medicine got a 6.9 percent boost.

The subcommittee did not include the administration's proposal for a "pause" in indirect cost funding among institutions that receive more than \$10 million per year in such funds. Subcommittee Chairman Neal Smith (D-Iowa) said he believes that the pause "is the wrong approach" because "it penalizes the most efficient institutions." However, the subcommittee is expected to ask the administration to provide proposals to change how indirect costs are allocated before the final version of the bill is approved in House-Senate conference.

The subcommittee's action was taken June 14, and the bill was expected to go to the full Appropriations Committee the following week. The subcommittee approved a transfer of funding authority from the individual institutes to the new Office of AIDS Research, as authorized under the 1993 NIH Revitalization Act. The bill provides \$8.5 million for the NIH Director's discretionary fund, and it is expected that there will be language to allow the NIH director to transfer up to 1 percent of funds for priority projects, whether or not they are emergencies. This authority would remain subject to requirements for reporting such actions to Congress. Bill language was also expected to ask NIH to conduct an outside evaluation of the extramural grant program comparable to the recently completed study of the intramural program.

In addition, the House Appropriations Subcommittee on VA-HUD-Independent Agencies met June 9 and agreed to provide \$2.217 billion for Research and Related Activities at the National Science Foundation. This reflects a \$53 million increase or 2.5 percent above the FY 1994 appropriation, but is \$131 million less than the president's request. The panel recommended that the NSF Academic Research Infrastructure account be provided \$100 million, which is \$45 million above the president's request although it is \$5 million less than the FY 1994 level for that program.

In other action, the same subcommittee provided \$252 million for VA medical and prosthetic research. This is the same level as the FY 1994 appropriation and reflects a \$41 million increase over the president's request.

Meanwhile, the Agriculture Appropriations Subcommittee provided \$9.3 million for Animal Welfare Act enforcement through the Animal and Plant Health Inspection Service (APHIS). This is the same amount as provided for this program in FY 1994 and reflects an increase of some \$60,000 over the president's request level.

## PETA Ads Out of USAir Magazine

USAir has informed APS that it will no longer carry ads for People for the Ethical Treatment of Animals. On June 3, APS Executive Director Martin Frank wrote to Associate Publisher Robert F. Young concerning an ad that appeared on page 102 of the April issue of USAir Magazine. Several APS members had contacted the Society to express concern about the ad.

In his letter, Frank noted the Society's long standing interest in the use of animals in research and its close cooperation with animal welfare organizations. He took exception with PETA's statement in the ad that it is "this nation's most effective and hard-hitting advocate of animal protection."

"PETA should also be recognized as the organization that provides an outlet for press statements issued by the Animal Liberation Front, an underground terrorist group that has destroyed millions of dollars of research space and equipment," Dr. Frank wrote. He noted the distinction between animal protection organizations and "those who object to human beings making use of animals for food, clothing, pets, or for life-saving medical research that is humanely conducted and federally regulated. PETA belongs to the latter category, no matter what its advertisement claims."

On June 14, Young informed Frank that the airline's inflight magazine would no longer carry PETA's public service advertising.

## APS Offers House Panel Views on DOD Animal Use

A House Armed Services Subcommittee held a hearing April 13 to review two reports concerning the use of animals in Defense Department (DOD) biomedical research. The reports had been requested following hearings two years earlier where representatives of the research community as well as animal activists had been invited to testify. However, the April 13 hearing provided no such sampling of views.

In a letter to Subcommittee Chairwoman Patricia Schroeder and the members of the Research and Technology Subcommittee, the APS criticized the decision to invite only animal activist organizations to review the reports. "The American Physiological Society believes that the Subcommittee should have solicited a broader range of expertise than that presented by the Physicians Committee for Responsible Medicine and the Humane Society of the U.S.," APS President Brian Duling wrote. Duling noted the Society's "longstanding interest in and commitment to the humane care and use of laboratory animals," pointing out also that "many APS members work at DOD research facilities and conduct DOD funded extramural research."

Duling challenged the recommendation by the Physicians Committee for Responsible Medicine that DOD save money by eliminating the use of animals in education and training because, according to PCRM President Neal Barnard "no animals need to be used in medical training at all." The APS "supports laboratory and training experiences involving animal subjects as one component of education in the biomedical sciences," Duling wrote. "The Society believes that the use of animals gives students a direct understanding of how living systems work, an understanding that cannot be gained by reading a textbook, watching a video, or using a computer."

Duling also took issue with testimony recommending that the interests of research animals would be best served by requiring that nonaffiliated IACUC members be individuals selected by self-styled animal advocacy organizations. "This view falsely presumes that biomedical investigators and veterinarians are *not* interested in animal welfare," Duling stated. "It also falsely presumes that individuals who identify themselves with those organizations necessarily *are* interested in animal welfare."

Duling noted that "many of the individuals who style themselves as [animal advocates] are in fact preoccupied with ending animal research entirely, rather than assuring that research animals are appropriately used." He pointed out that "scientists are committed to the welfare of research animals on both humane and scientific grounds [and] believe that animal welfare would be served better by letting IACUCs select unaffiliated members who accept the premise that animal research is justified and are willing therefore to provide careful review and thoughtful comments on research proposals."

### **APS Urges Medical Trust Fund**

The American Physiological Society wrote to selected members of the House Ways and Means Committee June 9 urging them to support Representative William Coyne's proposal to create a medical research trust fund as part of the health care reform legislation they were drafting. The letter was written in response to reports that acting Ways and Means Committee Chairman Sam Gibbons (D-Fla.) had not included the medical trust fund among the proposals he planned to include in the committee's version of health care reform legislation.

In his letter APS President Brian Duling pointed out that today "we have no choice but to spend billions of dollars on health care problems" and meanwhile the nation's fiscal crisis has limited our investment in medical research to "barely two percent of our total health care budget." Medical progress "will be very slow indeed if we proceed at that rate," Duling wrote, noting that a medical research trust fund in addition to the annual NIH appropriation "will help us make the investment we need."

The medical research trust fund, first advocated a year ago by Senators Tom Harkin (D-Iowa) and Mark Hatfield (R-Ore.) was included among the proposals Senate Finance Committee Chairman Daniel Patrick Moynihan (D-N.Y.) was reported to be using to draft his version of health care reform.

## **Court Decision on Rats, Mice and Birds Overturned**

On May 20 a federal appeals court overturned a 1992 decision that would have required USDA to include rats, mice, and birds within the definition of animals covered under Animal Welfare Act regulations. The case involved a suit against the USDA and other government agencies brought by the Animal Legal Defense Fund, the Humane Society of the United States, and two individuals who claimed an interest on behalf of research animals. The plaintiffs argued that by excluding rats, mice, and birds from its definition of "animal," the USDA had violated the intent of Congress regarding the 1985 amendments to the Animal Welfare Act.

The appeals court found that the plaintiffs did not have standing to sue because they had not been injured directly by the USDA's action or inaction. The appeals court also found that the plaintiffs had no statutory right to judicial review and remanded the case to the lower court with instructions to dismiss the suit. One member of the three-judge panel issued a partial dissent stating his belief that one individual plaintiff– a psychobiologist who formerly did animal research–should have been awarded standing.

It should be noted that federally funded biomedical research involving rats, mice, and birds must be conducted according to NIH's *Guide for the Care and Use of Laboratory Animals*.

The issue of legal standing could also be a factor in a second Animal Welfare Act decision that is under appeal. On May 12, the Court of Appeals heard arguments in that case, which involves USDA regulations for exercise for dogs, psychological well-being of primates, and cage sizes. Many of the judges' questions during the oral arguments concerned the issue of standing. The APS joined with the AAMC and several other organizations in filing an *amicus curiae* brief appealing the 1993 lower court ruling in that case. The National Association for Biomedical Research participated directly in the appeal as an intervenor on behalf of the research community. The appeals court decision is expected later this summer.

## Carolina Biological Cleared on Animal Cruelty Charges

Carolina Biological Supply Company announced May 17 that the USDA had cleared it of animal cruelty charges filed in 1991. USDA administrative law judge Dorothea A. Baker ruled that USDA had failed to prove that Carolina Biological "was knowingly engaged in or that there was any careless disregard for, the requirements of the regulations and standards" of the Animal Welfare Act. The judge's ruling was based upon testimony by a leading expert in veterinary medicine and euthanasia.

Four years ago People for the Ethical Treatment of Animals (PETA) targeted Carolina Biological after two PETA operatives infiltrated the company using falsified employment applications. The operatives made secret videotapes that were later produced to support allegations that cats were being embalmed while still alive. The case made a major impact when the videotapes were broadcast nationally in October 1990 on the ABC evening news. USDA lodged a formal complaint against Carolina Biological in October 1991 after being provided a copy of the tapes.

Judge Baker criticized the evidence, stating that "the PETA videotapes. . .are not the sort of evidence upon which responsible persons are accustomed to rely because they were made as part of an undercover investigation by unlicensed investigators who violated the law in the course of their investigation and because the videotapes do not depict all relevant parts of the embalming process and are of poor quality." She noted in her decision that Carolina Biological had never been cited for violations of the Animal Welfare Act until PETA "commenced a campaign to put it out of its customary business." She also pointed out that the PETA operatives had rationalized their own illegal actions and had "indicated that

they would do whatever was necessary" to bring about conformity with what they believed to be the proper treatment of animals.

## Animal Organizations Challenge Guide Revision

Three organizations sued the government to demand that the National Academy of Sciences panel revising the NIH "Guide for the Care and Use of Laboratory Animals" be required to include animal activists as members.

The suit was filed May 6 in U.S. District Court in Washington by the Animal Legal Defense Fund, the Association of Veterinarians for Animal Rights, and Psychologists for the Ethical Treatment of Animals. The defendants named in the suit are the Department of Health and Human Services, HHS Secretary Donna Shalala, Public Health Service director Philip Lee, and NIH Director Harold Varmus.

The suit claims that the NAS committee established to revise the NIH Guide should be required to abide by the Federal Advisory Committee Act (FACA). The FACA requires that federally sponsored committees must be balanced "in terms of the points of view represented," according to the suit, which asserts that the NAS Committee to Revise the Guide consists only of persons who use animals in research and fails to include any experts "who are concerned primarily with animal welfare science, or who will represent interests and concerns of animals apart from their use in experimentation."

The suit states further that the three plaintiffs have been denied permission for access to documents used by the committee, transcripts of the committee meetings and to attend the meetings.



## Committee Reports

## Animal Care and Experimentation



Issues relating to the use of animals in research continue to be a major concern for the members of the American Physiological Society. The Animal Care and Experimentation Committee (ACE) has worked to be proactive in educating the scientific community and the public about the importance of animals in research and has responded to several events on behalf of the

Joseph R. Haywood

Society.

The committee has joined efforts with other societies in a variety of actions on issues related to the use of animals in research. The first FASEB Consensus Conference on the Use of Animals in Research was held in June to develop a Statement of Principles for the FASEB Societies. J. R. Haywood co-chaired the Conference and Jeff Osborn represented APS. The Statement is to be incorporated into materials to be developed for distribution by FASEB Societies to high school students and members of the public who request information. J. R. Haywood also attended the AAALAC Board of Trustees meeting in January for APS and, with chairs of animal care committees from other professional societies, initiated an annual meeting to discuss common issues and promote the exchange of ideas.

The committee is also looking ahead to 1995 when animal activists are expected to challenge the provision for Class B dealers of animals in the farm bill that will be considered for legislative renewal. A strategy is being developed to inform Congress of the importance of this source of animals for research.

The first copies of the "Sourcebook for the Use of Animals in Physiological Research and Teaching" were distributed to all APS members. Several hundred more copies were sent out in response to requests from individuals, libraries, Institutional Animal Care and Use Committees (IACUC), and other professional societies. Permission was also granted to the Italian Physiological Society to translate the book for their members.

The committee provided written and oral testimony for the revision of the "NIH Guide for the Care and Use of Laboratory Animals". In addition to a number of specific suggestions, the comments focused on the continued use of professional judgment and performance-based standards for the care of animals. The Society's testimony was used as a model by a number of other professional societies for their own comments. The committee also worked with the Education Committee on an illustrated educational brochure for middle school students project to counter the material that animal activist groups are distributing.

There were a number of legal and media events that required the response of the committee. The Society joined an *amicus curiae* brief in appeal of a legal decision that would have nullified the Animal Welfare Act regulations dealing with exercise requirements for dogs and psychological wellbeing of primates. The Society commented on the proposed animal care regulations by the New York State Department of Health. Letters to the Editors were also sent to the *New York Times, Nature,* and the British *Journal of Cardiovascular Research* in response to articles that appeared concerning animal research.

The committee is always open to suggestions from the membership about animal research policy concerns. Please contact us through the APS Public Affairs Officer, Alice Hellerstein, at APS Headquarters.

J. R. Haywood, Chair

## Committee on Committees

The Committee on Committees consists of two members of Council, one of whom is chair, and 12 other members representing each of the sections. The 12 section members are currently chosen from a list of nominees by the Committee on Committees for 3-year staggered terms.

Table 1.	Committee or	Committees

Section	Name & Term Expiration	
Gastrointestinal	Helen Cooke, Chair	(94)
Cell/General	Mordecai Blaustein,	
	Incoming Chair	(95)
Gastrointestinal	Catherine Chew	(94)
Cell/General	David Dawson	(95)
Comparative	Roger Fedde	(94)
Environ/Exercise	Susan Fortney	(94)
Water/Electrolyte	Ronald Freeman	(95)
Cardiovascular	David Harder	(94)
Neural/Autonomic	Eileen Hasser	(96)
CNS	Ralph Lydic	(96)
Teaching	Joel Michael	(95)
Respiration	Lynn Olson	(95)
Renal	David Ploth	(96)
Endocrin/Metabolism	Gerald Shulman	(96)

The Committee on Committees plays an important role in selecting nominations for the APS standing committees. This process is highly dependent on nominations received from members of the Society. The process is initiated by solicitation of nominations from members and culminates with Council approval of nominees recommended by the Committee on Committees. The process for obtaining nominations for APS standing committees is a somewhat complex process. By outlining the steps necessary for final selection of nominees, it is hoped that members will be encouraged to submit nominations and to participate in the process.

#### **Process of Committee Membership Selection**

• In November-December, nominations are solicited from the President, Councillors, Committee on Committees, Chairs of committees, sections and departments of physiology, and from the general membership.

• By January-February, the Committee on Committees receives an alphabetical list of all nominees and of their nomination forms.

• By February-March, each member of the Committee on Committees chooses his/her slate of candidates and an alternate for each committee based on qualifications, section, gender, minority or junior investigator status.

• In March, the APS office prepares a spreadsheet of nominees ranked by the number of votes.

• At the spring APS meeting, the Committee on Committees meets to select the final slate of candidates. Candidates with the greatest number of votes in general are selected unless adjustments for section representation, gender, minority status or age are necessary.

• The Committee on Committees also makes recommendations for chairs of all committees. The recommendations for chairs of the Program, Finance, and Publications Committees are given to the Executive Cabinet (President, President-Elect and Past-President) who interviews these candidates or those of their own choosing and selects one nominee for each.

• In the summer, the Chair of the Committee on Committees presents its report and recommended appointments for all committees and committee chairs to Council.

• Council approves all appointments to committees for the following year.

• Members are notified in the fall of their appointments to committees.

#### **Summary of Committee on Committees Activities**

The Committee on Committees met on April 24, 1994 in Anaheim, California. The tasks of the Committee on Committees were to review charges of other APS committees, select nominees to fill vacancies, and to ensure adequate representation of sections, women, young investigators, and minorities on APS committees. Letters were received from the chairs of four committees: International, Membership, Public Affairs and Women's. These letters were in response to a request from the Committee on Committees to evaluate whether the responsibilities and size of these committees were appropriate. With the exception of the International Physiology Committee, the chairs of the three other committees indicated that they did not foresee any changes in either size or charges of their respective committees. Deliberations on the charges of the International Physiology Committee are ongoing, and further action on these changes was tabled until the International Physiology Committee makes its report to Council in July.

The Committee on Committees recommended that letters be sent to the Animal Care, Career Opportunities, Daggs and Education Committees requesting that the charges and size of the committees be reviewed.

#### Selection of Nominees for Committees:

The Committee on Committees selected a slate of 42 nominees and 24 alternates based on expertise, section affiliation, gender, age, and minority status for approval by Council. (Table 2).

Table 2. Projected new appointments 1995

Number	Section		
7	Α	Cardiovascular	
6	В	Cell/General	
2	С	Comparative	
4	D	Endocrinology/Metabolism	
4	Ε	Environmental	
4	G	Gastrointestinal	
2	J	Central Nervous System	
1	K	Neural Control/Auton. Regulation	
6	L	Renal	
1	М	Respiration	
0	Ν	Teaching	
4	0	Water/Electrolyte	
1	U	Undeclared	

The Committee on Committees has made a conscientious effort to achieve balance of section representation on standing committees. This process has evolved over the last several years and has culminated in a relatively balanced slate with several noteworthy exceptions. These exceptions include: Cardiovascular (A) and Respiration (M) sections which are underrepresented in the projected appointments; Teaching (N) section which did not have any appointments this year; and Renal (L) and Water/Electrolyte (O) which are well represented on committees.

With respect to gender, there were 9 women recommended for appointment to committees, and 1 as chair. Of the 9 women, two were appointed to serve as APS representatives to FASEB Committees. There were 10 recommendations for appointment of young members under the age of 45, 3 of these as chairs. There was 1 recommendation for appointment of a minority candidate. This low number reflected the difficulty in identifying minority candidates from the nomination forms. It was suggested that nomination forms and/or membership forms be modified in the future to include a category to designate whether if the candidate is a minority.

The idea of changing the process of appointment of section representatives to the Committee on Committees was discussed. The consensus was that the current system, which is new, should not be changed until there has been another year or so to evaluate its merits.

The Committee on Committees encourages all members of the Society to participate in the process of selecting committee members by submitting complete nominations that include the individual's expertise and qualifications. Selfnominations are encouraged as well. The Committee on Committees welcomes any suggestions for improvement of the process.

Helen Cooke, Chair



Education

Frank L. Powell, Jr.

In the past year, the Education Committee has devoted itself to improving APS programs aimed at K-12 levels, to developing plans to achieve the objectives for graduate and professional education in the 1992 Strategic Plan, and in developing educational programming for members. We have been extremely lucky to have Marsha Matyas, the new APS Education Officer, as part of our team. Not only has her experience strengthened existing APS

programs but she has obtained two major educational grants from NSF also.

One of the grants, "Frontiers in Physiology", is a three year \$1 million-plus teacher enhancement program that increases the number of APS High School Teacher Summer Research fellowships from 12 to 20. Of course, this means more APS sponsors will be needed so we encourage you to contact your local high schools and sponsor a teacher application for summer '95. (Applications will be available this summer and are due January 4, 1995.) Teachers attend the Experimental Biology meeting as part of the fellowship and participate in an Inservice Training Workshop for local area teachers and students. An important feature of the workshop is grouping teachers, students, and APS docents during the noon break to visit posters and exhibits and "talk science" over lunch. Anyone interested in volunteering for this at Experimental Biology '95 in Atlanta, should contact APS. For members interested in making K-12 or community presentations on their own, several APS committees are collaborating to develop resource packets that will be available for a small fee.

The role of APS in graduate and professional education was considered at the Council Education Retreat in November, 1993. Good progress was made for physiology in medical education when Donald Kassebaum from the Liaison Committee for Medical Education (LCME) agreed to take suggestions from APS for members of accreditation panels. A role for APS in graduate education was less clear but the timeliness of the issue is highlighted by a NAS "Study of National Goals and Policies for Graduate Education of Scientists and Engineers" currently being conducted. We have started a review of available data to see what can be learned about the supply, demand, and eventual fate of graduates from physiology training programs. Another approach we are considering is the development of an APS position on the centrality of physiology to health science education. A position advocating training in integrative problem solving is relevant to both medical and graduate education in this age of information overload and specialization. The committee encourages members to share their ideas with us on these issues.

The Education Committee is also continuing to sponsor the popular Sunday workshops on modern techniques at the Experimental Biology '94 meeting. The subject was "Transgenics" in Anaheim, and will be "Applications of Caged Molecules" in Atlanta, 1995. We encourage suggestions for a 1996 workshop and ideas for a refresher course on gastrointestinal physiology planned for 1996 also. Final proposals for both programs are due February, 1995.

Frank L. Powell, Jr., Chair

## **International Physiology**



Melvyn Lieberman

The International Physiological Committee (IPC) was active in programs related to countries in the Pacific rim, Latin America and Africa. A Sino-American Subcommittee was established to formally recognize the need to enhance APS interests with the Republic of China (ROC), People's Republic of China and other nations in the Pacific rim. A primary goal of this subcommittee is to improve informatics (data-

bases, bulletin boards) between the American and Chinese Physiological Societies.

A Sino-American session of the APS Conference on Signal Transduction and Gene Expression was held in San Francisco. This session brought together prominent scientists in signal transduction from the US and the ROC. During the year, the subcommittee also facilitated the placement of students, postgraduate research and clinical fellows, and visiting scientists.

The Subcommittee on Latin America has established a network of contacts throughout Latin America, including all countries except Honduras, the Dominican Republic, Paraguay and Colombia. APS representatives attended the recent XVII Congress of The Latin American Association of Physiological Sciences to establish contacts for developing future joint meetings between our societies. A member of the committee participated in the first Congress of the African Association of Physiological Sciences and another member is active in developing low-cost satellite communication links with African physiologists.

The IPC sponsored a workshop at the Experimental Biology '94 meeting in Anaheim entitled "Prerogatives and Commitments Pertaining to Foreign Nationals–The US Institutions and Individual Sponsors." The panel and members of the audience discussed issues related to the impact of changes brought about in 1990 to the immigration laws (McCarran-Walker Act of 1952).

Melvyn Lieberman, Chair

## Finance



It is the responsibility of the Finance Committee to review and modify the 1994 budget that was approved by Council in October 1993. With the Executive Director, Business Manager, and Publications Manager, the committee reviewed the Society's performance in 1993, revised the 1994 budget, and submitted it to Council for final approval. Based on the performance of

Franklyn G. Knox

the Society in 1993, the Finance Committee recommended an overall budget for 1994 of \$10,912,703.

During 1993, the Society's journal operations ended the year with income in excess of expenses of \$580,651. This figure includes the allocation of \$200,000 to a contingency fund. The Society's book operations ended the year with income in excess of expenses in the amount of \$57,486. The Society's general fund derived from direct membership activities ended the year with a deficit of \$301,975.

The Finance Committee is also responsible for reviewing the performance of four management groups managing our investment accounts through the consultative services of Smith Barney Shearson. As of December 31, 1993, the accounts had the following market value: Operating Reserve Investment Account = \$7,641,487; Publications Contingency and Reserve Account = \$5,213,058; Caroline tum Suden Account = \$326,412; IUPS Account = \$238,812; Perkins Memorial Fund = \$182,426; Second Century Program Fund = \$1,267,590.

In 1994, the Society raised journal prices to attain the goal of a three-tiered subscription pricing schedule and to adjust prices to reflect a journal's total cost of production. As a result of the discussions, the Finance Committee recommended, and the Council approved raising institutional subscription prices as follows: consolidated American Journal of Physiology = 8%; Journal of Applied Physiology = 4.3%; Journal of Neurophysiology = 6.2%; Physiological Reviews = 1.8%; AJP: Cell Physiology = 20%; AJP: Lung Cellular and Molecular Physiology = 0%; AJP: Heart and Circulatory Physiology = 11%; AJP: Gastrointestinal and Liver Physiology = 6%; AJP: Regulatory, Integrative and Comparative Physiology = 7%; AJP: Endocrinology and Metabolism = 2%; and AJP: Renal, Fluid and Electrolyte Physiology = 0%. The 1994 rates on most of the APS journals for members and nonmember individuals will remain unchanged.

In proposing the 1995 subscription rates, the Finance Committee had extensive discussions with the Publications Committee and journal editors. As a result, it was recommended that journal prices be increased to reflect the actual cost of production of each APS journal and to set prices so that none of the scientific journals lost money. With Council's approval, the journal prices will be increased in 1995 by the following percentages: consolidated American Journal of Physiology = 8%; Journal of Applied Physiology = 0%; Journal of Neurophysiology = 10%; Physiological Reviews = 0%; AJP: Cell Physiology = 20%; AJP: Lung Cellular and Molecular Physiology = 0%; AJP: Heart and Circulatory Physiology = 11%; AJP: Gastrointestinal and Liver Physiology = 0%; AJP: Regulatory, Integrative and Comparative Physiology = 20%; AJP: Endocrinology and Metabolism = 6%; and AJP: Renal, Fluid and Electrolyte Physiology = 0%.

For 1994, the Society General Fund is projected to show a deficit of \$432,093 as a result of the Council's decision to support two APS Conferences, in New Haven, Connecticut and Sarasota, Florida, and an Intersociety meeting in San Diego, California. In order to continue to service the membership and to reduce the deficit in the Society General Fund, the Finance Committee recommended and the Council approved the first dues increase since 1982. The \$5.00 increase will raise the dues of Regular and Corresponding members to \$85.00.

As part of the Finance Committee's and Council's strategic plan, Council formally established a Strategic Goals Fund using income derived from the Society's reserves. This fund will be used to provide added benefits to the membership and will be used to support the minority programs administered by the Porter Physiology Development Committee, the Research Career Enhancement Awards, the High School Science Teachers Program, the Distinguished Lectureship Program and speaker support for the APS Conferences. This Fund will be utilized to initiate other new programs that fulfill the goals of the APS Strategic Plan. Unexpended funds in any given year will be carried over for use in subsequent years.

The Finance Committee is also responsible for receiving the annual audit performed by Coopers and Lybrand. The audit found the operations of the Society to be "in conformity with generally accepted accounting principles" and that the finance statements "present fairly, in all material respects, the financial position of the American Physiological Society." For the information of the membership, the Society's Balance Sheet for 1994 is provided for review.

Franklyn G. Knox, Chair

## APS Balance Sheet December 31, 1993

1,708,807 \$22,169,156

#### Assets

Cash and cash equivalents	\$ 738,380
Certificates of deposit	2,729,014
U.S. government securities, at cost,	
market value: 1993, \$7,498,294	7,133,153
Marketable securities, at cost,	
market value: 1993, \$8,575,035;	7,703,308
Accounts receivable, including \$20,000	
due from FASEB in 1993	1,141,226
Accrued interest receivable	122,558
Advances to section editors	222,281
Inventories, net of allowance of \$300,000	
in 1993	550,459
Prepaid expenses	19,711
Furniture, fixtures and equipment, net of accumulated depreciation of \$242,294	
in 1993	100,259
	20,460,349
Net assets restricted and allocated for unexp	pended grants,
contracts and restricted funds:	<b>2</b> 21 000
Cash	231,999
Certificates of deposit	104,313
U.S. government securities, at cost,	
market value: 1993, \$316,549	318,544
Marketable securities, at cost, market	
value: 1993, \$1,092,539;	1,049,767
Accrued interest receivable	4,184

#### Liabilities

Accounts payable and accrued expenses, including \$144,421 in 1993	\$ 900,194
Unearned revenue	
Subscriptions	4,037,102
Dues	199,681
	4,236,783
Unexpended grants and contracts	1,708,807
	6,845,784
Fund Balances	
Publications general fund	9,582,877
Publications special fund (deficit)	(10,094)
Society general fund (deficit)	(269,014)
Publications contingency and reserve fund:	
Principal	3,879,836
Income	850,858
Second Century Program Fund:	
Principal	1,002,611
Income	126,395
Strategic Goals Fund	159,903
	15,323,372
	\$22,169,156

## APS Outreach to Latin American Physiologists



L. Gabriel Navar conveys greetings of APS.

As an extension of the Society's earlier efforts to develop outreach activities with our Latin American colleagues (see *The Physiologist* 36:181, 1993), the APS asked L. Gabriel Navar (Tulane University) and Clark M. Blatteis (University of Tennessee, Memphis) to represent the Society at the XVIII Congress of the Latin American Association of Physiological Sciences (ALACF, by its

Spanish initials) in Montevideo, Uruguay, April 12-16, 1994.

The Society's participation in the ALACF Congress was in response to an invitation from Elio Garcia-Austt, President of ALACF and of the Congress. Navar represented the Society as a member of Council and Blatteis represented the Society as the chair of the Subcommittee on Latin America of the International Physiology Committee. Each presented a paper during the sessions highlighting aspects of their current research programs.



Clark M. Blatteis

Between 300 and 400 scientists attended the Congress. Most of the participants were from Latin America, but there was also a sprinkling of US and French participants, usually as invited speakers in the various symposia. The approximately 400 papers presented at the Congress were programmed into 23 half-day symposia (all oral presentations) and 15 poster sessions (related or free communications). The subject matter ranged from apoptosis to sensory physiology. There were a large number of papers on biophysical mechanisms (channels, receptors, transduction mechanisms), many on the role of nitric acid in physiological processes, and a good representation on endocrinology, neuroendocrinology renal physiology, circadian rhythms, and other areas. The quality of the presentations were generally good to very good, with some some truly outstanding reports presented. The most active Latin American groups were often times working in collaboration with US or European colleagues, often supported by grants held conjointly; the European contribution in this regard noticeably outstripped the North American.

The Congress opened with a formal ceremony during which Navar presented the greetings of the APS and read a letter from William H. Dantzler, APS President. Blatteis made brief remarks related to the APS' outreach to Latin America and presented an APS certificate of recognition to



Clark Blatteis presenting a certificate of recognition to Elio Garcia-Austt.

Garcia-Austt and to Francisco Morales, President of the Uruguayan Physiological Society. Later, Navar and Blatteis met with the executive council (Mesa Directiva) of ALACF to discuss possible initiatives for future collaboration between APS and ALACF (e.g., joint meetings, information exchanges, etc.). They also met with the presidents or delegates of the various national physiological societies participating in the Congress to pro-

vide information about the APS and its activities, and to learn how the APS could be of assistance to their societies.

There are indeed many ways in which US and Latin American physiologists can relate more closely, to the mutual advantage of both groups. Physiological research is progressing rapidly in several Latin American countries. Information about these programs will be published in future issues of *The Physiologist*.

The Subcommittee on Latin America would like to know if APS members are planning to travel to any country in Latin America or are expecting a Latin American visitor. They would also like to know if surplus audiovisual aids, computer software, workable equipment, or spare parts, are available for donation to needy colleagues in Latin America.

Finally, the subcommittee would be happy to transmit to our Latin American colleagues, through its network of resident contacts, information on opportunities for advanced training or collaborative research. APS members who may be aware of these opportunities are encouraged to contact the subcommittee.

Those who wish to contribute to this outreach, or help in any other way, may contact Clark M. Blatteis, University of Tennessee, Department of Physiology and Biophysics, 894 Union Avenue, Memphis, Tennessee 38163 (Tel: 901-448-5845; fax: 901-448-7126; Email: blatteis@utmem.physiol. utmem.edu).



(L-r): Alberto Cirio, Clark Blatteis, Elio Garcia-Austt, L. Gabriel Navar, Francisco Morales, Patricio Zapata, Ramon Latorre.

## Program



Heinz Valtin

Currently, the APS sponsors two major types of scientific meetings: Experimental Biology (EB) each spring (formerly the FASEB meetings), and APS Conferences between June and December. In some years, there are also larger conferences called Intersociety Meetings. The Program Advisory Committee (PAC) and Program Committee (PC) are responsible for

soliciting, ranking, and selecting proposals, and recommending their selections to the APS Council for approval. The PAC is a large body composed of representatives from the various Sections and Special Interest Groups, while the PC has just five members, who fine-tune the recommendations of the PAC, taking issues such as budget and programmatic balance into account.

Experimental Biology '94 was held in Anaheim CA in April of this year. It was the second year for the new format, and the major flaws from the prior year were corrected: 1) the program was printed in chronological order, and its three indexes could be used easily; 2) attendance by authors at their posters was staggered throughout the day; 3) consequently attendance at the commercial exhibits was spread more uniformly throughout the day. The last point pleased the exhibitors, which is important since they represent the major source of revenue for the APS from the EB meetings. Registration was good: 9,428 scientists, 2,144 exhibitors, and 820 others, for a total of 12,392 persons.

The twelve Distinguished Lectureships of the APS, one for each Section, were introduced this year. By and large, they were very successful—some spectacularly so—and they served one of their main purposes, which is to supply a focus around which each Section can build its scientific and social program.

Beginning with the 1993 meeting, EB meetings have been divided into two major components: 1) themes, which ideally are interdisciplinary in nature, of interest to members of the several participating societies, and carried forward from year to year; and 2) sessions that are sponsored by each society and therefore more focused on the discipline of the society. The PAC and PC continue to strive for a format in which the two components will mesh and be attractive to the same individuals. For example, members of the Gastrointestinal Section of the APS who work on membrane transport should find sessions of interest not only under the theme Epithelial Cell Biology but also under the banner of the GI Section of the APS. Or, endocrine physiologists might be attracted equally to the theme Molecular Regulation of Growth and Development and to sessions planned by the Endocrine Section. In this manner, we hope to combine the benefits of a large intersociety meeting (the science, the job placement service, the technical exhibits) with the intimate, collegial atmosphere of smaller "meetings within a meeting." We welcome suggestions from members of APS on how better to achieve this goal. For EB '94, 2,081 abstracts were submitted to the APS; of these, approximately two-thirds were incorporated into one of the nine themes, whereas roughly one-third were presented as part of the societal program.

When the idea of themes was initiated, it was emphasized that the list of topics is a dynamic one, which will be changed as need arises. For EB '95, to be held in Atlanta GA, April 9-13, 1995, the following themes will be programmed: Cardiovascular Biology; Respiratory Biology; Cell Injury, Inflammation, and Repair; Epithelial Cell Biology; Metabolic Processes in Health and Disease; Regulation of Growth and Development; Neurobiology; Signal Transduction.

APS Conferences were initiated in 1991 with the highly successful "From Channels to Cross Bridges," held in Bar Harbor, ME. Two further conferences, "Cellular and Molecular Biology of Membrane Transport" and "Integrative Biology of Exercise," were held in 1992 in Orlando, FL and Colorado Springs, CO, respectively; and two more, "Physiology and Pharmacology of Motor Control" and "Signal Transduction and Gene Regulation," in 1993, in San Diego, CA and San Francisco, CA, respectively. As this list makes clear, these meetings are focused, though the topic may range from very constricted to much broader, so that the number of participants can be as few as 150 or as many as a thousand. The venues include major cities, resorts in more rural settings, and university campuses. The object is to discuss a topic at the state of the art level in a collegial atmosphere.

Three meetings of this type will be held in 1994: "Physiology of the Release and Activity of Cytokines," June 25-28, Yale University, New Haven, CT; "Mechanotransduction and the Regulation of Growth and Differentiation," October 5 - 8, Sarasota, FL; and "Regulation, Integration, Adaptation: A Species Approach," October 30-November 2, San Diego, CA. The last is an Intersociety Meeting sponsored jointly by APS, the American Society of Zoologists, the German Society of Zoologists, the Canadian Society of Zoologists, and the Society of Experimental Biology (U.K.)

In 1995, there will be two APS Conferences: "Understanding the Biological Clock: from Genetics to Physiology," July 8-12, Dartmouth Medical School, Hanover, NH; and "New Discoveries in the Physiology of the Pancreatic Polypeptide Family: Molecules to Medicine," November 8-11, Newport Beach, CA.

Three meetings have been approved for 1996: "Neural Control of Breathing," tentatively scheduled for late June or July, University of Wisconsin, Madison, WI; "Physiology of Acid-Base Regulation: from Molecules to Humans," tentatively scheduled for June 29-July 3, Breckenridge, CO; and "Integrative Biology of Exercise," tentatively scheduled for September, Vancouver, BC, Canada (an Intersociety Meeting and sequel to the one held in Colorado Springs in 1992).

APS Conferences and Intersociety Meetings are open to all members of the APS and others, and any member of the APS may initiate a proposal through their Section or Group. For further information, please contact Linda Buckler (Tel: 301-530-7171) at the APS office in Bethesda. We encourage suggestions and comments about our scientific programming from the membership.

Heinz Valtin, Chair

Other topics that were considered by the Public Affairs Committee that have not yet been drafted into final policy actions are: earmarking of federal science funds without peer review; indirect cost; and targeted NIH research.

The Public Affairs Committee is organized so that a question or problem may be raised by any member of the APS. We invite the membership to contact us by writing to the Public Affairs Officer (Alice Hellerstein) at APS headquarters.

Eric Feigl, Chair

## **Publications**



In 1993 the Publications Committee continued to work toward fulfillment of the objectives of the strategic plan developed by Council in 1992. The objectives are to maintain and promote excellence in the publications program; to establish a long-term policy regarding financial self-sufficiency of all the journals; and to explore the development of electronic publication of the journals.

Leonard R. Johnson

#### To maintain and promote excellence

The Publications Committee contracted with the Institute for Scientific Information (ISI) for a customized report of the citation statistics of the individual journals of the American Journal of Physiology (hitherto unavailable because only the consolidated AJP is given an Impact Factor by ISI). Five-year windows (1987-1991) show that the highest citation paper score among the AJP journals is the AJP: Renal, Fluid and Electrolyte Physiology followed closely by AJP: Cell Physiology. ISI provides comparable citation statistics for two competing journals of the editor's choice. The committee has contracted with ISI for an updated report through 1993.

To ensure that the APS journals are meeting the needs of the physiological community, in 1993 the Publications Committee implemented a new procedure for evaluating the journal before the reappointment of an editor for a second term or the appointment of a new editor.

In January 1994 Walter Boron began his first term as editor of *Physiological Reviews*. In August 1993 Stanley Schultz was appointed as editor of *News in Physiological Sciences*; his term begins July 1, 1994.

Six editors held meetings in Bethesda with their Associate Editors and/or staff: Journal of Applied Physiology, Advances in Physiology Education, AJP: Lung Cellular and Molecular Physiology, AJP: Cell Physiology, AJP: Endocrinology and Metabolism, and Physiological Reviews; the PRV European Board met in Lucerne. At the Experimental Biology meetings in 1993 and 1994 most journal editors met with their associate editors for breakfast and luncheon meetings, and with those editorial board members who attended the general Editorial Board meeting.

The Committee invited editors to attend the Second International Congress on Peer Review in Biomedical Publications. Three editors attended (Benos, Hansen, and Rannels). They brought reports back to the Committee and to the other editors and recommended further attendance by editors at such meetings.

The Public Affairs Committee recommended changes in the wording of the Information for Authors, which led to an improved version of the instructions by the Committee. The changes concerned clarification of the rules regarding originality of the manuscripts and further defined the responsibility of the author(s).

The editors of the Journal of Applied Physiology and AJP: Heart and Circulatory Physiology changed the organization of the table of contents of their journals from sequential order to subject area, which they believe will enable readers to locate articles in their fields more easily. Remmers, Editor, introduced a new section in JAP, which features invited comments on a regular article in the journal. Hansen, editor of Advances in Physiology Education, changed the journal to a completely new design and format in 1993; several new columns were introduced.

Remmers, with approval of the Publications Committee, instituted a new experiment whereby submitted articles are mailed to reviewers from the Bethesda office. The editor's office in Canada is developing a centralized reviewer database that it plans to share with all the associate editors of *JAP*. Eventually, the APS office hopes to be able to send submitted manuscripts electronically to the editor/associate editors offices. The experiment is being monitored closely for efficiency and cost.

The Publications Committee initiated an evaluation study of "pink" reviewing sheets with the help of Desjardins, editor of AJP: Endocrinology and Metabolism, because the reviewing sheet he had developed seemed to work very well. An amended sheet was developed at the Spring Editors' meeting for use by all editors' offices and may be further revised. The new reviewing sheets will allow editors to identify those papers that, while technically correct, do not add significantly to the field. This will allow editors to increase manuscript rejection rates and to improve the quality of the journals. Increased rejection rates should result in publication of fewer pages, which will enable the Publications Committee to maintain its policy of not setting page limitations because of cost considerations. The editors agreed to this change and also agreed to encourage authors to decrease the length of articles by writing more succinctly and avoiding redundancy. Although the number of submitted manuscripts for the research journals in 1993 did not increase overall, the first four months of 1994 show an increase of 5% over 1993. Pages published in 1993 increased by 9%, and pages published through April 1994 are 9% higher than the same period in 1993.

# To establish a long-term policy regarding financial self-sufficiency of each journal.

To reach the goal of financial self-sufficiency, the Society established variable price increases for the journals in 1993 and 1994, based on the financial status of each journal, an estimate of its growth in size in the following twelve months, and the estimated loss of subscriptions. It was necessarv to raise the institutional price of AJP consolidated to 10% in 1993 and 8% in 1994, and that of the Journal of Neurophysiology by 8% in 1993 and 10% in 1994, because both these journals have experienced a significant increase in pages published. It was only necessary to increase the institutional price of PRV and JAP nominally, however, in 1993 and 1994. For APS members and non-member individuals, the subscription prices of most of journals have not increased for several years, with the exception of AJP: Cell Physiology and AJP: Heart and Circulatory Physiology, which have experienced significant increases in pages published in the last two years because of a large increase in submitted manuscripts.

Unfortunately, the annual loss of subscriptions is ranging from 2% to 4% overall for the four large journals. Domestic institutional subscriptions are holding their own or declining less than 2%, whereas foreign institutional subscriptions are declining at rates of 3-7%. The individual AJP journals are not experiencing subscription losses overall; however, their income comprises only 17% of the total income for the AJP. It is the consolidated AJP loss of subscriptions that has the greater financial impact.

At the IUPS meeting in Glasgow, the Joint Managing Board of *NIPS* met with the heads of the IUPS-affiliated Societies to enlist their support in reducing the deficit for *News in Physiological Sciences*. It was hoped that the IUPS Societies would increase the number of subscriptions by purchasing *NIPS* for their members. To date, the Australian Physiological Society has agreed to purchase *NIPS* for its members in 1995 and the Association des Physiologists (France) offered to buy it for new members in 1994. The Physiological Society has purchased 40 gift annual subscriptions for members on its "freelist" and included a *NIPS* subscription form with the dues notices. Other Societies, (German, Swiss, Swedish) are giving support by distributing brochures and taking flyers to meetings.

The institutional price of *NIPS* was increased to \$80 in 1994 and will be raised to \$90 in 1995. The non-member price and IUPS price remain at \$60 and \$30, respectively, for both those years.

The department has been successful in containing costs in the last two years. In 1993, for example, 9% more pages were published in the *AJP*, *JAP*, and *JN* with only a 5% increase in cost. The 43% increase in editing from authors' disks contributed to these savings. Sending a copyedited disk to the printer instead of a paper manuscript saves approximately \$100 in typesetting costs. Therefore, in 1995 the Committee is initiating a charge of \$100 if a disk is not provided by the author for an accepted manuscript. There will be waivers for extenuating circumstances, of course.

To further lower production costs, as of January 1994, the department has changed the printer for the AJP journals to Science Press in Ephrata, Pennsylvania, a well-established printer that is offering excellent rates. In an effort to keep reviewing costs under control, the Publications Committee made several recommendations to Council in 1993, which were accepted. They included 1) The development of a formula for a fixed budget based on an average cost per manuscript; 2) The shelving, for the time being, of the payment of honoraria; 3) The postponement of a manuscript handling fee until other cost-containment methods have been implemented; 4) The continuation of the present policy of mandatory page charges but with fewer waivers.

#### To explore the electronic publication of APS journals

The department has been using the APS Gopher server to provide information on the publications program, including editors, boards, scope statements, Information for Authors, subscription prices, and monthly tables of contents. Gopher use for the receipt of publications information is expanding rapidly as evidenced by the increase in "hits" in that category.

In January 1994 the Society launched *APStracts*, a new electronics journal that provides on-line abstracts of accepted articles on the Gopher server before print publication. This pilot program began with the *AJP: Cell Physiology* journal; all journals will be included by 1995.

Science Press and Lancaster Press demonstrated CD-ROM disks, using articles from the APS journals, at the Experimental Biology '94 meeting in Anaheim. Attendees were asked to test the products and fill in questionnaires. Responses will help the society develop a product that responds to market needs. Further user response will be obtained throughout 1994.

The *AJP* and *JAP* became participating journals in the Red Sage project, a 3-year experiment developed by the University of California, San Francisco, in conjunction with Springer-Verlag and ATT/Bell Laboratories. The project is designed to make a number of journals available to the UCSF faculty via the computer network operated by the University library in an effort to determine the utility of electronic journals.

The Society hired a marketing coordinator to promote its publications, membership, public affairs, and educational activities. The coordinator works closely with the Publications Manager to develop an aggressive program for promotion of the journals through advertisements, direct mailings, the booth presentation, the publications catalog, and brochures. The Society also hired a new agent for the sale of paid advertising for the journals.

The Society did not publish any books with Oxford University Press in 1993 but several are expected to be in print in 1994 and 1995. Two books in the new Technical Book Series ("Fractal Analysis in Biology" and "Membrane Protein: Structural and Analytical Methods") and one book in the Clinical Series ("Flow-Dependent Regulation of Vascular Function in Health and Disease") are due on the market shortly. Eight Handbooks and two history books are in progress and several should appear in 1995. The APS no longer produces books from start to finish but co-publishes with Oxford University Press. APS develops the book, chooses editors, approves outlines, and leaves the actual production to OUP. Book income currently consists of royalty income of 65% from past books produced solely by APS, and 5% royalty income from books published jointly with OUP. The former, of course, will decline each year; the latter, hopefully, will increase. OUP also pays the editor and authors a royalty of 5% each. APS does not currently incur any significant costs for the book program, whereas in past years, half a million dollars would have been tied up in books under production.

The Publications Committee has held three extended meetings since I took office in January 1993, which have included ten interviews for journal editorships. I thank the members of the Committee for their dedicated service to the publications of our Society. The contributions of the Presidents and Executive Director as ex officio members are also greatly appreciated.

I thank our journal editors for their hard work and their interest in the publication program that extends far beyond their own journal. I thank, too, our associate editors, who play such a large part in journal operations, and the editorial board members and guest referees for their reviewing efforts.

Finally I am especially appreciative of Brenda B. Rauner, Publications Manager, Laurie Chambers, Production Manager, and the APS publication staff, who manage so ably to produce over 30,000 printed pages of high-quality scientific research a year.

Leonard R. Johnson, Chair

## **Senior Physiologists**

A major responsibility of the Senior Physiologists Committee is to correspond with members of the American Physiological Society who are 70 years old or older. During the year letters were sent to members on their 70th birthdays and greeting cards were sent to those turning 80, each with a personal note and a request for a reply to be published in *The Physiologist*. Based on reports from most committee members, approximately 140 letters or cards were mailed and 25 replies received. Fourteen letters were published in *The Physiologist* with more to appear in future issues. In addition, the members of the committee reviewed six applications for G. Edgar Folk, Jr. awards. These awards are made to seniors for such purposes as attending a meeting, engaging in modest experiments, or completing a manuscript. Names of awardees are not made public.

This year, at the request of William Dantzler, the committee considered a suggestion by Steven Horvath that efforts be made to encourage greater participation of senior physiologists in the activities of APS. A summary of the ideas generated was given to Dantzler. They include a suggestion that, for seniors, the now reduced registration fees for meetings be eliminated and subscription prices for journals published by the Society be cut. It was proposed that the Society encourage seniors to provide special contributions in any of the following ways:

• Assistance to journal editors in putting into idiomatic English accepted translations of foreign scientific papers.

• Teaching small blocks of lectures to graduate or medical students in the U.S. or in developing countries.

• Assisting public schools or community colleges with scientific activities.

• Mentoring junior faculty members or graduate students by reviewing research plans and manuscripts.

It will be the Council's responsibility to evaluate these ideas for their feasibility and possible implementation.

The committee very much appreciates the help and advice of Martin Frank and wishes to thank all of the senior members of APS who contributed accounts of their experiences for all society members to share.

Helen M. Tepperman, Chair

## Women in Physiology

A major emphasis of the Committee on Women in Physiology has been the continued development of the Women in Physiology Mentoring Program. The purpose of this program is to foster the development and retention of active women scientists in the American Physiological Society by increasing the mentoring and networking interactions between junior women physiologists and other more established physiologists. Currently 33 mentees and 35 mentors have been recruited and feedback from both mentees and mentors has been positive. The second annual Mentoring Workshop and Reception was held on Sunday, April 24, 1994, at the Experimental Biology '94 Meeting in Anaheim. The event was highlighted by a talk entitled, "Perspectives on Women in Physiology: Past Achievements and Future Opportunities," given by Bodil Schmidt-Nielsen, former president of the APS. Following Schmidt-Nielsen's talk, Marsha Lakes Matyas, APS Education Officer, provided a brief synopsis of the Mentoring Program. The reception following the program lasted approximately one hour, during which time committee members were available to answer questions about the mentoring program. The workshop and reception allowed both current and potential mentors and mentees a chance to interact. Any individuals interested in learning more about the program and mentoring in general are invited to attend next year's workshop.

Information on the program and application forms for those interested in participating as mentors or mentees can be obtained from the APS office. For those already participating in the program, literature is also available to facilitate the mentoring process. Questions about the program or mentoring in general can be directed to Matyas, APS education Officer, and staff liaison to the committee, or to members of the Women in Physiology Committee.

Another major activity of the Women in Physiology Committee is administration of the Carolyn tum Suden/ Frances A. Hellebrandt Professional Opportunity Awards. This award provides \$500, complimentary registration for the meeting, and a waiver of the placement service fees to twelve male or female graduate students or postdoctoral fellows who present a contributed paper at the meeting. In 1994, the Women in Physiology Committee selected the 12 award winners from 160 submitted abstracts.

The chair of the Women in Physiology Committee represents the APS on the FASEB Excellence in Science Award Committee. Dossiers of eighteen outstanding women from all FASEB societies were evaluated and the recipient of the Award for 1995 will be Philippa Marrack from the American Association of Immunologists. The competition for this award is rigorous, and a well-prepared nomination dossier is critical. Although the members of the FASEB Excellence in Science Committee do not directly nominate individuals for the award, Cheryl M. Heesch, the APS representative to this committee, is available to the APS membership for advice in preparing a nomination packet. Preparation of the nomination packet should begin well before the May 1 deadline in order to obtain the necessary materials and letters of support. APS members are encouraged to identify and nominate outstanding women in the Society for this prestigious award. In addition to the honor of being recognized as an outstanding scientist, the recipient of the FASEB Excellence in Science Award receives an unrestricted research grant of \$10,000 provided by Eli Lilly and Company.

> Virginia Brooks Cheryl M. Heesch, Co-Chairs

## **Careers in Physiology**

The efforts of the Careers in Physiology Committee have been directed toward several projects.

1. A Careers Poster, which has been completed and distributed to higher education institutions.

Members of the Careers Committee drafted a design for a poster to encourage undergraduate students to consider careers as physiologist. The poster design was submitted to a professional designer who produced an attractive and eyecatching poster, The design is on computer disk so the images can be used for other APS publications. The poster and postcard have been mailed to over 1600 departments of biology/life sciences, reaching all of the 2- and 4-year higher education institutions with a department by that name. Persons who complete and return an attached postcard will receive a copy of the APS careers brochure and a copy of List of Institutions Granting Degrees in Physiology. An additional 1,000 posters are being held at the APS Education Office for distribution to interested students and K-12 teachers via exhibits at the National Science Teachers Association and at meetings of the National Association of Biology Teachers. The poster can be reprinted at a nominal charge.

2. The annual Careers Symposium held at the FASEB meeting.

This year the Careers Symposium was coordinated by Joey Granger. The symposium was held on Sunday night from 6-8 pm at the FASEB meeting in Anaheim and featured 6 speakers who spoke about career opportunities in academic centers, government, and industry. The program was followed by a wine and cheese reception so that attendees could meet with and talk to the speakers. The program was well attended with over a hundred participants.

3. A Speakers Bureau, designed to facilitate interaction between scientists and primary and secondary schools or other educational groups.

Our goal is to develop a database of scientists who are willing to speak to school children on a variety of topics and issues relating to science. These topics would include both those which are scientific, on which scientists could serve to enrich or supplement the school curriculum, and political issues relating to science (e.g., the use of animals in research). Information will also be provided regarding scientific careers and career guidance. The Education Office of the APS is developing a file of resource material which would also be made available either to scientists who wish to interact with the schools or which could be obtained directly by school teachers, if requested, Teachers will be made aware of the Speakers Bureau by notices in publications of national teachers organizations. Over the coming year, we propose to inform the APS membership of the plans for the Speakers Bureau and to solicit their participation.

Susan J. Gunst, Chair

# Sections and Reports

## **Society Sections**

## How To Become Affiliated

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

Membership in the sections is open to all members of the Society. The Statement of Organization and Procedures for each section established specific requirements for membership. APS members who wish to become affilated with one or more of the listed sections should contact APS Membership Services, 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel: (301) 530-7111.

#### Cardiovascular

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

#### Cell and General Physiology

Melvyn Lieberman (1995), Chair and Section Advisory Committee

Caroline S. Pace (1995), Secretary-Treasurer

Donald M. Bers (1996) and Lazaro J. Mandel (1994), Councillors

Jack H. Kaplan (1996), Program Advisory Committee

Dales J. Benos (1996), Editor, AJP: Cell Physiology, ex officio

#### **Central Nervous System**

Richard A. Hawkins (1994), Chair and Section Advisory Committee

Celia D. Sladek (1995), Secretary-Treasurer and Program Advisory Committee

Helen Baghdoyan (1996), B. Bishop (1994), H. F. Cserr (1994), L. Drewes (1994), J. M. Krueger (1994), and R. Lydic (1994), Steering Committee

#### **Comparative Physiology**

Larry I. Crawshaw (1997), Chair and Section Advisory Committee Carol A. Beuchat (1996), Secretary Gordon S. Mitchell (1997), Treasurer Stephen H. Wright (1994), Program Advisory Committee

#### Endocrinology and Metabolism

Charles A. Blake (1995), Chair and Section Advisory Committee

David Wasserman (1995), Secretary-Treasurer

Jessica Schwartz (1995), Program Advisory Committee

Richard N. Bergman (1995) and Miriam R. Walters (1997), Councillors Claude Desjardins (1994), Editor, AJP: Endocrinology and Metabolism

#### Environmental and Exercise Physiology

Carl V. Gisolfi (1997), Chair and Section Advisory Committee
Charles Tipton (1996), Secretary-Treasurer and Program Advisory Committee
Kenneth M. Baldwin (1996), Jack A. Boulant (1996), George A. Brooks (1997), Suzanne M. Fortney (1996), John T. Stitt (1996), and Ronald L. Terjung

- (1995), Steering Committee
- Reed W. Hoyt (1996), Hypoxia Group Subsection

#### Gastrointestinal Physiology

- Gilbert A. Castro (1997), Chair and Section Advisory Committee Joseph D. Fondacaro (1997) Secretary-Treasurer
- Patrick Tso (1997), Program Advisory Committee
- Hannah V. Carey (1997), Catherine S. Chew (1997), and Kenton M. Sanders (1997), Councillors
- David H. Alpers (1997), AJP: Gastrointestinal and Liver Physiology, ex officio

#### Neural Control and Autonomic Regulation

Cheryl M. Heesch (1996), Chair and Section Advisory Committee
Michael C. Andresen (1997), Secretary-Treasurer
Eileen M. Hasser (1996), Program Advisory Committee
Lawrence P. Schramm (1994), Councillor

### **Renal Physiology**

Roger G. O'Neil (1996), Chair and Section Advisory Committee Patricia A. Preisig (1995), Secretary Ulla C. Kopp (1997), Treasurer Jeffrey L. Garvin (1995), Awards Committee Chair

Keith A. Hruska (1995) AJP: Renal, Fluid and Electrolyte Physiology, ex officio

Leon C. Moore (1996) and Jeff M. Sands (1995), Program Advisory Committee

#### **Respiration Physiology**

Edward D. Crandall (1996), Chair and Section Advisory Committee Jimmie T. Sylvester (1994), Secretary Steven G. Kelsen (1996), Treasurer Aron B. Fisher (1994), Program Advisory Committee

Richard D. Bland (1994), Councillor and Program Advisory Committee–Elect

D. Eugene Rannels (1997), Editor, AJP: Lung Cellular and Molecular Physiology, ex officio

John E. Remmers (1996), Editor, Journal of Applied Physiology, ex officio

#### **Teaching of Physiology**

David S. Bruce (1996), Chair and Section Advisory Committee
Richard Manalis (1995), Secretary
Allen A. Rovick (1997), Treasurer
Nels C. Anderson (1997), Program Advisory Committee
R. E. Thies (1996), Education Committee Liaison

#### Water and Electrolyte Homeostasis

Ian A. Reid (1995), Chair and Section Advisory Committee

Virginia L. Brooks (1996), Secretary-Treasurer

Ian A. Reid (1995), Program Advisory Committee

William H. Dantzler (1995), AJP: Regulatory, Integrative and Comparative Physiology, ex officio

#### Epithelial Transport Group

John Cuppoletti (1994), Chair and Program Advisory Committee

#### History of Physiology Group

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

#### Hypoxia Group

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

#### **Myo-Bio/Muscle Group**

Thomas M. Nosek (1994), Program Advisory Committee

#### **Physiologists in Industry**

David P. Brooks (1995), Program Advisory Committee



APS Section Advisory Committee. (Seated l-r): Eldon J. Braun, Celia D. Sladek, William H. Dantzler, Richard J. Traystman, Cheryl M. Heesch, Joey P. Granger. (Standing l-r): Charles A. Blake, Beverly Bishop, Roger G. O'Neil, Melvyn Lieberman, David S. Bruce, Jack D. Wood, Edward D. Crandall, Carl V. Gisolfi, James Covell.

## Excellence in Renal Research Awards

The Excellence in Renal Research Awards were presented by the APS Renal Section at Experimental Biology '94 to the top abstracts submitted by graduate or medical students and by post-doctoral fellows. This year, there were 20 predoctoral and 11 post-doctoral nominees. The competition was very difficult to judge due to the high quality of all of the abstracts.

The predoctoral awardees were Bonnie L. Firestein (advisor: Paul Insel) of University of California, San Diego, Carla R. Long (advisor: Franklin Knox) of Mayo Clinic and Foundation, and Bryan D. Moyer (advisor: Bruce Stanton) of Dartmouth Medical School. The postdoctoral awardees were: Michael F. Romero (advisor: Walter Boron) of Yale University and Neil Kizer (advisor: Bruce Stanton) of Dartmouth Medical School. These awards were made possible by generous donations from: Hoffmann-LaRoche Inc., Marion Merrill Dow Inc., and Merck Sharp and Dohme.

The Renal Section Procter and Gamble awardees were: John G. Ladas (advisor: Aviad Haramati) of Georgetown Univ. and Jacqueline Novak (advisor: Robert Banks) of University of Cincinnati.



Winners of the Excellence in Renal Research Award at Experimental Biology '94 receiving their awards at the Renal Section Banquet from Jeffrey Garvin (cochair) and Jeff Sands (chair) of the Renal Section Award Committee. (L-r): Neil Kizer, Michael Romero, Carla Long, Bonnie Firestein, Jacqueline Novak, and John Ladas.

## Nominations are Invited for the Third Annual Arthur C. Guyton Physiology Teacher of the Year Award

The Teaching of Physiology Section of the American Physiological Society is sponsoring the Arthur C. Guyton Physiology Teacher of the Year Award. This award is supported by the W. B. Saunders Company. Nominees must be full-time faculty members of accredited colleges or universities and members of the American Physiological Society. They must be involved in classroom teaching and not exclusively teaching graduate students in a research laboratory. Each proposed person must be nominated by a member of the American Physiological Society. The nominator is responsible for providing the following application materials and forwarding three copies to the Chairperson of the Award Selection Committee, postmarked no later than November 30, 1994.

· A letter of nomination from the nominator.

• Letters of support from three other colleagues familiar with the nominee's teaching career, one being the nominee's chairperson if possible.

• Letters of support from up to ten current and/or former students.

• Scores on standard student evaluations of teaching effectiveness.

• Competitive teaching honors received, such as the Golden Apple.

• Evidence of educationally related activities outside the classroom, such as developing laboratory exercises or teaching software, authoring textbooks or education research articles, education-related presentations at professional meetings, educational committees within the institution, educational consultation with other organizations, public appearances, etc.

· A copy of the nominee's curriculum vitae.

• Any additional documentation that the nominee wishes to include, such as number of graduate students trained, number of undergraduate students pursuing careers in physiology, teaching innovations introduced.

The person selected will receive the award at the banquet of the Teaching of Physiology Section during the next annual meeting of the American Physiological Society. This will take place at Experimental Biology '95 in Atlanta, GA, in April 1995. The Arthur C. Guyton Physiology Teacher of the Year will receive a framed, inscribed certificate, an honorarium of \$1,000, and expenses of up to \$750 to attend the meeting. The awardee is requested to write an essay giving his/her philosophy of education for publication in *The Physiologist.* 

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



## Awards

## **1994 Award Recipients**

### Henry Pickering Bowditch Lecture



W. James Nelson receiving the Bowditch Lectureship Award from Stanley G. Schultz.

### Walter B. Cannon Lecture



President W. H. Dantzler and Maurice Burg, APS Cannon Lecturer.

## Orr E. Reynolds Awardee



Bodil Schmidt-Nielsen, recipient of the 1994 Orr E. Reynolds Historical Award, with President Dantzler.

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

William Dantzler was pleased to announce that the recipient of the 1994 Ray G. Daggs Award is **Ernst Knobil**. Born in Berlin, Germany, Knobil was predestined to be an eminent physiologist when he attended the Lycée Claude Bernard in Paris. However, it was at Cornell University that he was introduced to the field of endocrinology in the laboratory of Samuel L. Leonard where he completed his Ph.D. thesis in 1951. After two years in the U.S.

## **Ray G. Daggs Award**



Ernst Knobil

Army, he became a Milton Research Fellow in the laboratory of Roy O.

Greep, a coeditor of the section on endocrinology in the Handbook of Physiology, at the Harvard School of Dental Medicine. He then moved to Eugene M. Landis' department of physiology at Harvard Medical School. A superb teacher, he fascinated hundreds of students with his live demonstrations of endocrine abnormalities in experimental animals. In 1961, he was appointed the Richard Beatty Mellon Professor and Chairman of the Department of Physiology at the University of Pittsburgh School of Medicine. In 1981, he became Dean of the School of Medicine at the University of Texas Health Science Center at Houston, and the Hightower Professor of Physiology and Director of the Laboratory of Neuroendocrinology.

Knobil's membership in the APS dates from 1955. He was a member of the Editorial Board of the American Journal of Physiology: Integrative and Comparative Physiology and Editor of the American Journal of Physiology: Endocrinology and Metabolism. With Wilbur Sawyer, he edited the volumes on the pituitary gland and hypothalamus of the Handbook of Physiology. He served on Council of the APS from 1969 to 1972, and became the 52nd President in 1979.

Knobil has received numerous honors and honorary degrees and was elected to the National Academy of Science in 1986. He has held many important positions in the field of endocrinology, was president of the International Society of Endocrinology, and has been chairman of the U.S. National Committee for IUPS Commission on Endocrinology. Knobil's research has generated widespread interest both in this country and abroad, and he has given countless prestigious lectures, including the APS Bowditch Lecture (1965). His scientific contributions have focused on the physiology of the primate adenohypophysis. His recent studies have delineated the neuroendocrine control system that governs secretion of gonadotropic hormones throughout the menstrual cycle of the rhesus monkey. As a result of his research, we now understand control of the menstrual cycle for the first time, particularly in the rhesus monkey.

Knobil's most recent societal contribution, as Chairman of the APS Long-Range Planning Committee, was a White Paper on the Future of Physiology and the Role of the APS in It. He concluded, "It is only a matter of time before the funding agencies recognize the importance of integrative biology, and the APS should spearhead an educational and informational effort at the federal level to hasten this transformation." He then went on to say, "A deep malaise permeates the physiological community regarding the future of the science and of the institutions that represent it." Finally, he noted, "Physiology may have missed out on the last revolution in biology, but it should not miss out on the next."

"It was with deep regret that Ernst Knobil could not attend the meeting to accept this award," stated Stanley Schultz, who read Knobil's message of acceptance, "It is with profound gratitude and humility that I accept the Daggs Award for 1994. I receive this award with the knowledge that the American Physiological Society has, over the thirty-nine years of my membership, done much more for me than I have for it.

I fondly hope that, in the years ahead, my association with the American Physiological Society, and with my many friends and colleagues within it, will continue to deepen and to grow. Thank you."

## 1994 Giles F. Filley Memorial Awards

The Council is pleased to announce the selection of the 1994 Giles F. Filley Memorial Award recipients. A total of thirteen applications were received in this year's competition. Five of the applications were from the University of Colorado.

The selection committee was constituted by the Respiration Section and consisted of Steven Kelsen, Temple University, Adam Wanner, University of Miami, John Evans, University of Vermont, Julian Solway, University of Chicago, and Stephen Liggett, University of Cincinnati. The Selection Committee recommended and the Council approved the selection of Edward C. Dempsey as the awardee from the University of Colorado, and Robb Glenny, University of Washington, as the recipient from the U.S. at large.

Edward C. Dempsey, M.D., is an assistant professor of medicine at the University of Colorado, Denver. His study focuses on the role of the alpha isozyme of protein kinase c in the pulmonary artery smooth muscle cell proliferative response to hypoxia. **Robb Glenny**, M.D., is an assistant professor of medicine at the University of Washington, Seattle. His study focuses on descriptors, models and mechanisms of perfusion and ventilation heterogeniety in the lungs with respect to both spatial and temporal distributions. Both awardees received a check for \$12,000 for use in their research programs.



(L-r): President William Dantzler and Chris Filley presenting the first Giles F. Filley Memorial Award for excellence in respiratory physiology and medicine to Edward C. Dempsey, University of Colorado, and Robb Glenny, University of Washington.

## **Research Career Enhancement Awards**

The APS Research Career Enhancement Awards were initiated in 1994 as a means of enhancing the career potential of APS regular members in good standing. The awards will provide up to \$4,000 to allow individuals to develop new skills and to retrain in areas of developing interests. Based on the recommendations of Council, these awards can be used for short-term intensive learning experiences in other laboratories to acquire new scientific skills or for attendance at special courses devoted primarily to methodologies appropriate for both new investigators and more senior investigators entering a new field of research. The awards are not to be used to provide travel to scientific meetings, workshops or symposia with limited scope for scientific growth.

In the first round, the Interim Awards Committee, chaired by Helen Cooke, considered two applications for a Research Career Enhancement Award. Based on their recommendation, the Council approved the selection of **Gary J. Schwartz**, Ph.D., Assistant Professor of Psychiatry and Behavioral Science, Johns Hopkins University School of Medicine. Schwartz plans to visit the laboratory of C. H. Malbert of the Institut National de Recherche Agronomique, St. Giles, France, for a two-week period to learn the methods involved in measurement and analysis of transpyloric flow of fluid digesta. This technique will enable Schwartz to fine tune his current neurophysiologic work on gastrointestinal vagal afferents and feeding behavior.

The APS plans to award approximately 10 Research Career Enhancement Awards each year. Deadlines are February 15 and August 15. Applications can be obtained from the APS Executive Director.

## Caroline tum Suden/Frances A. Hellebrandt Awards Attract Record Number of Applicants

More than 160 female and male graduate students and postdoctoral fellows submitted applications for the 1994 Caroline tum Suden/Frances A. Hellebrandt Professional Opportunities Awards. The 12 awardees are selected by the Women in Physiology Committee based on the quality of their abstracts. Each awardee receives a certificate, \$500, complimentary registration for the meeting, and a waiver of the placement service fees. Awards were presented during the APS Business Meeting at Experimental Biology '94 in Anaheim by former committee chair, Hannah Carey. The Women in Physiology Committee is proposing changes in the application process for the 1995 awards. These changes will provide additional information to improve the review of applications.

Awardees for the 1994 Experimental Biology meeting were as follows:

Ana Maria Azzarolo, University of Southern California, Los Angeles

John Robert Charpie, University of Michigan, Ann Arbor Robin L. Davisson, University of Iowa, Iowa City Jeff Emery, University of California, San Diego Tong Ge, Baylor College of Medicine, Houston, TX Steven Carl George, University of Washington, Seattle Rosalia Gonzales, Georgia Institute of Technology, Atlanta Sheba M.J. Ignatius, Kansas State University, Manhattan Tara L. Little, University of Virginia, Charlottesville Ming Qi, Loyola University Medical Center, Maywood, IL Ming Shi, University of Southern California, Los Angeles Ren Zhang, University of Miami, Miami, FL



1994 Caroline tum Suden/Frances A. Hellebrandt Professional Opportunity Award winners.

## **Procter & Gamble Professional Opportunity Awards**

As a result of a generous contribution provided by the Procter & Gamble Company, the APS has been able to recognize the contributions of predoctoral students to the science of physiology. Awardees are selected by the 12 Sections of the Society; the number of awards made per Section are based on the number of applications submitted to the Section by predoctoral students. P&G Professional Opportunity awardees receive a certificate, \$500, and complimentary registration for the Experimental Biology meeting. The 17 awardees for the 1994 meeting in Anaheim were:

#### **Cardiovascular Section**

Mary L. Clements, University of North Carolina, Chapel Hill

James B. Hoying, University of Arizona, Tucson

Rachel A. Hunt, University of Alabama, Birmingham Suneil K. Koliwad, Baylor College of Medicine,

Houston

Steven J. Swoap, University of California, Irvine

#### **Cell & General Physiology Section**

Ronald A. Blum, University of California, Berkeley Comparative Physiology Section

Russel D. Andrews, University of British Columbia, Vancouver

#### **Endocrinology and Metabolism Section**

Kevin J. McDonnell, Georgetown University, Washington, DC

#### Environmental and Exercise Physiology Section Todd A. McBride, University of California, Davis

Donald E. Watenpaugh, NASA Ames Research Center, Moffett Field, CA

#### **Gastrointestinal Physiology Section**

Russell Broaddus, University of Texas Medical School, Houston

#### **Neural Control & Autonomic Regulation Section**

Heather A. Drummond, VA Medical Center, Milwaukee, WI

#### **Renal Physiology Section**

Jacqueline Novak, University of Cincinnati, Cincinnati, OH

John Gregory Ladas, Georgetown University, Washington, DC

#### **Respiratory Physiology Section**

Song Won Ko, University of Southern California, Los Angeles

Stephanie Tjen-A-Looi, University of Wisconsin School of Veterinary Medicine, Madison

#### Water and Electrolyte Homeostasis Section

Amadou K.S. Camara, Medical College of Wisconsin, Milwaukee



1994 Procter & Gamble Professional Opportunities Awardees

## **Experimental Biology '95**

## Abstract Deadline

## **December 1, 1994**

### NIDDK Minority Fellows Attend Experimental Biology '94

The APS, with support from the National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK), awarded travel fellowships to 23 underrepresented minorities to attend the annual spring APS/Experimental Biology meeting in Anaheim, California. The APS/NIDDK program, which has been in existence since 1987, provides awardees with reimbursement for transportation, meals, and lodging. Each Fellow is assigned to an individual mentor who guides the Fellow through the meeting and introduces him/her to leading scientists. The culmination of the Fellows' participation is a closing luncheon to review the week's scientific activities and to hear an APS member discuss his/her research. L. Gabriel Navar, Tulane University School of Medicine, spoke to the fellows about his career during the luncheon.

For the April 1994 meeting in Anaheim, the Society received applications from 46 candidates. Table 1 provides a breakdown of the minority and academic status of the applicants and awardees. Two-thirds of both applicants (N=31) and awardees (N=15) identified themselves as African-American and a third of both applicants (N=15) and awardees (N=8) identified themselves as Hispanic. The 1994 Spring Meeting Awardees were:

Larry D. Alexander, Meharry Medical College Frantzie Balmir, University of Illinois, Urbana-Champaign Esther R. Carlisle, Tuskegee University Maria Florez-Duquet, University of California, Davis Etoi Garrison, Tulane University School of Medicine Vyvian Gorbea-Oppliger, Michigan State University

Minnie Q. Holmes-McNary, University of Illinois, Urbana-Champaign James E. Raynor, Jr., Morehouse College Alphonso Keaton, Meharry Medical College Anthony B. Madison, University of Tennessee, Memphis Sheila A. Mathias, Meharry Medical College Tracy Richmond McKnight, University of California, Davis Evangeline D. Motley, Meharry Medical College Elizabeth T. Penades, University of California, Berkeley/ San Francisco Maria M. Rivera-Correa, University of Puerto Rico Michael F. Romero, Yale University Jose Angel Santiago, Tulane University Robin V. Searles, Pennsylvania State University College of Medicine Kiernan A. Seth, Meharry Medical College Corrigan Smothers, Meharry Medical College Ronald T. Stroman, University of South Carolina Barbara L. Tabor, Jackson State University Trini Vargas, University of North Dakota 1994 NIDDK Fellows

Table 1. 1994 NIDDK Travel Fellowships Award Applications and Acceptances for Experimental Biology '94

	Percentage of total	
Subgroup	Applications	Acceptances
African-American males	30% (14)	26% (6)
African-American females	37% (17)	39% (9)
Hispanic males	20% (9)	17% (4)
Hispanic females	13% ( 6)	17% (4)
Total	100% (46)	50% (23)



1994 NIDK Fellows



1994 NIDK Fellows

## **APS and Section Awards**

### **Society Awards**

## **Research Career Enhancement Awards**

The APS Career Enhancement Awards are designed to enhance the career potential of APS members. The awards will provide up to \$4,000 to allow individuals in the early phases of their careers to obtain special training and in the later phases of their careers to develop new skills and to retrain in areas of developing interests.

The awards can be used to support short-term visits to other laboratories to acquire new specific skills and to support attendance at special courses devoted primarily to methodologies appropriate for both new investigators and more senior investigators entering a new field of research.

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

## Caroline tum Suden Professional Opportunity Awards

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

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

The Giles F. Filley Memorial Fund was established in 1993 to recognize excellence in respiratory physiology and medicine. The awards are made to investigators who hold an academic rank no higher than assistant professor and are pursuing research in respiratory physiology and medicine. Each award will be for approximately \$12,000 and is designated for the use of the awardee in his/her research program. Awards do not include any indirect cost reimbursement.

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

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

### G. Edgar Folk, Jr., Senior Physiologist Award

The G. Edgar Folk, Jr., Senior Physiologist Fund has been set up through the generosity of family and former graduate students and postdocs to provide modest but helpful assistance to senior physiologists, 70 years or older, who no longer have grant funds available to them. The awards, in the amount of \$500, might be used for such purposes as attending an APS meeting to present a paper, engaging in a series of modest experiments, or completing a manuscript (paying for typists or perhaps page charges). Recipients will be selected with the assistance of the Senior Physiologists Committee throughout the year. Names of awardees will not be made public. Mary Folk writes that the purpose of the fund is for the Senior Physiologists Committee "to have fun assisting colleagues and for Emeritus APS members to keep in closer touch with APS."

### NIDDK Travel Fellowships for Minority Physiologists

NIDDK Travel Fellowships for Minority Physiologists are open to advanced undergraduate, predoctoral, and postdoctoral scientists who have obtained their undergraduate education in Minority Biomedical Research Programs (MBRP) and MARC-eligible institutions, as well as students in the APS Porter Development Program. Applications may also be submitted by minority faculty members at the above institutions. Funds will provide transportation, meals, and lodging to attend the annual spring Experimental Biology meeting. The specific intent of this award is to increase participation of the pre- and postdoctoral minority students in physiological sciences. Applicants need not be members of the APS but should be US citizens or hold permanent resident visas. Applications should include 1) information on academic background and experience; 2) a written statement of interest in research in physiology; 3) a letter of recommendation from the applicant's mentor; 4) a list of publications, if available; 5) a statement indicating the underrepresented minority (Black, Hispanic, American Indian, etc.) with which the applicant identifies himself/herself; and 6) an estimate of required travel and per diem expenses. The deadline for receipt of completed applications is December 8.

## John F. Perkins, Jr. Memorial Fellowship

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

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

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

## **Orr E. Reynolds History Award**

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

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

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

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

Manuscripts should be typed and double spaced with wide margins on 8.5 x 11 paper and should conform to the style used in APS journals. (Instructions will be sent on request.) Three copies should be submitted for use of the review committee. Manuscripts should be sent to the Orr E. Reynolds Award, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814, by December 1. The recipient of the award will be announced at the Experimental Biology meeting.

## **Section Awards**

## **Procter & Gamble Professional Opportunity Awards**

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

### Cardiovascular

The Cardiovascular Section presents three annual awards—Fellowship, the Lamport Award, and the Carl J. Wiggers Award. Nominations for Fellowship Awards must be made by at least two existing fellows with supporting letters sent to the steering committee for vote. The total number of fellows cannot exceed 5% of the APS regular members who have published meritorious research in cardiovascular physiology. The Lamport Award is presented to a young investigator under the age of 36 showing outstanding promise in his/her field of cardiovascular research. The recipient, who receives a certificate and a \$200 check, is selected by the Wiggers awardee of the previous year. The Carl J. Wiggers Award honors a founder of the section and is presented to a scientist who has made outstanding and lasting contributions to cardiovascular research.

## **Central Nervous System**

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

## **Comparative Physiology**

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

### **Environmental and Exercise Physiology**

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

## **Gastrointestinal Physiology**

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

## **Renal Physiology**

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

## **Teaching of Physiology**

The Teaching of Physiology Section of the American Physiological Society sponsors the Arthur C. Guyton Physiology Teacher of the Year Award. The award is sponsored by the W. B. Saunders Company. Nominees must be full-time faculty members of accredited colleges or universities and members of the APS. They must be involved in classroom teaching and not exclusively teaching graduate students in a research laboratory. Each nominee must be nominated by a member of APS. The nominator is responsible for completing application materials and forwarding three copies to the chairperson of the Award Selection Committee. The deadline for receipt of applications is November 30.

The person selected will receive the award at the banquet of the Teaching of Physiology Section at the spring Experimental Biology meeting. The Teacher of the Year will receive a certificate, an honorarium of \$1,000, and expenses of up to \$750 to attend the meeting.

## Water and Electrolyte Homeostasis

The Young Investigator Award in Regulatory and Integrative Physiology was established to encourage young investigators to continue research careers in cardiovascular, renal, and neuroendocrine integration. The award will be presented annually at the business luncheon of the Water and Electrolyte Homeostasis Section of the American Physiological Society to a young investigator (less than 40 years old) who has made important contributions to our understanding of the integrative aspects of cardiovascular, renal, and neuroendocrine physiology in health and/or disease. The award will consist of \$500, a plaque, and free registration to the annual Experimen-

# Call for Nominations

### **Bowditch Lecture Award**

The annual Bowditch Lecture honoring the first elected President of the American Physiological Society, Henry Pickering Bowditch, has been given at the annual meeting since 1956. The first Bowditch Lecture, "Role of the Red Blood Corpuscles in the Regulation of Renal Blood Flow and Glomular Filtration Rate," was presented by John R. Pappenheimer.

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

Nominations for the 1996 Award should be accompanied by letters from two nominators describing the importance of the candidate's work, a brief sketch of the nominee's professional history, papers or manuscripts that substantiate the excellence of the candidate, and a curriculum vitae. The nominators should clearly state the contributions of candidates to any jointly authored manuscripts and papers, documenting the independence of the nominee's work. Nominations should be submitted by October 1, 1994 to the APS Bowditch Lecture Award, 9650 Rockville Pike, Bethesda, MD 20814-3991. tal Biology meeting. The recipient of the award will also be invited to present a short lecture on his/her research work during one of the scientific sessions of the Experimental Biology meeting.

Any member of the APS in good standing may apply or be nominated for the award. Applications will be reviewed by the Awards Committee of the Water and Electrolyte Homeostasis Section and should include a curriculum vitae of the nominee; a brief (one-page) summary and analysis of the research contributions of the nominee; a complete list of publications; and two letters of nomination from members of the APS.

The nomination and supporting documents must be received no later than November 1.

## Physiology in Perspective Walter B. Cannon Memorial Lecture Award

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

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

Nominations for the 1996 Cannon Lecture Award should be adequately documented to demonstrate the candidate's contributions to physiology. A curriculum vitae should accompany the letter of support describing the nominee's achievements. Submit nominations by October 1, 1994 to the APS Cannon Lecture Award, 9650 Rockville Pike, Bethesda, MD 20814-3991.

## **Know Your Sustaining Associates**

#### **Abbott Laboratories**

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

#### American Medical Association

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

#### Axon Instruments, Inc.

Axon Instruments, Inc. designs and manufactures instruments and software for electrophysiology. Axon Instruments produces full-featured amplificrs for single-channel and whole-cell patch clamp and for single and twoelectrode current/voltage clamp applications. These hardware products are supported with PC and Macintosh software and acquisition hardware for the

acquisition and analysis of biophysical data. The latest products are the CyberAmp series of general-purpose analog signal conditioners. They provide up to eight channels of computer-controlled adjustment of gain, offset, and low-pass Bessel filtering. Virtually any type of transducer can be adapted for the CyberAmp. The computer can instantly determine the scaling and units of each transducer. Support for the CyberAmps is provided by software from Axon Instruments and others. The CyberAmp used in conjunction with Axotape software and TL-1-125 acquisition hardware makes a complete computerbased chart re-corder system.

#### Berlex Laboratories, Inc.

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

#### Coulbourn Instruments, Inc.

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

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

#### **Dagan Corporation**

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

#### Du Pont Pharmaceuticals

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

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

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

#### **Fisons Pharmaceuticals**

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

#### Genentech, Inc.

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

#### Glaxo

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

#### **Grass Foundation**

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

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

#### Groupe de Recherche Servier

Of the 6,000 people working throughout the world at the Groupe de Recherche Servier, 25% carry out research involved in the development of new drugs.

Among these, various specialists including chemists, pharmacists, pharmacologists, toxicologists, and physicians work in our research laboratories located in Suresnes, Orleans, Gidy, Fulmer, Tokyo, and in our development teams in Courbevoie, Fulmer, Brussels, Munich, Rome, Madrid, and Tokyo.

The main areas of research at the Groupe de Recherche Servier concern the following areas of pathology: cardiovascular disease: especially in hypertension, myocardial ischemia; heart failure: cardiovascular aging, venous diseases; oncology and immunology; respiratory disease: chronic obstructive pulmonary diseases, asthma; metabolic disease: diabetes, lipid disorders, obesity and their consequences particularly in terms of cardiovascular damage; neurological disease: cerebral impairment in elderly, Parkinson's disease; Carebrovascular disease: memory impairment, Alzheimer's disease; psychiatric disease: emotional disorder, anxiety, depression; and rheumatology: inflammatory and painful joint diseases, joint and bone aging including osteoporosis.

#### **Harvard Apparatus**

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

#### ICI Pharmaceuticals Group

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

#### **Jandel Scientific**

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

#### Janssen Research Foundation

Janssen Pharmaceutica was founded in Belgium in 1953 by Paul Janssen. It is now an international company built on the foundation of research and a bedrock of innovation. The company remains under the direction of Janssen and has an unparalleled record in the successful development and marketing of new pharmaceutical products. According to the Japan Drug Research studies, Janssen was responsible for more significant new drug discoveries during the period 1970)1983 than any pharmaceutical company in the world.

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

#### The R. W. Johnson Pharmaceutical Research Institute

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

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

#### **Eli Lilly and Company**

The Lilly Research Laboratories is dedicated to the advancement of basic scientific information upon which further targeted medical breakthroughs may be identified. Scientists in the Lilly Research Laboratories are committed to excellence in research as evidenced by a steadily increasing investment in research and development over the years. Scientific research is being supported by the construction of new research facilities and with the use of a Cray II supercomputer. Scientist are focusing on basic research and targeted medical therapy for cardiovascular disease, central nervous system dysfunction, cancer, diabetes, and pulmonary disorders.

### **Quaker Oats Company**

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

#### **Pharmacia Incorporated**

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

### **Procter & Gamble Co.**

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

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

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

### Narco Bio-Systems

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

#### Schering-Plough

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

#### **SmithKline Beecham**

SmithKline Beecham is one of the world's leading healthcare companies. Its principal activities are the discovery, development, and marketing of both human and animal pharmaceuticals, over-the-counter (OTC) medicines, health-related consumer brands and clinical laboratory testing services.

#### **Squibb Corporation**

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

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

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

#### The Upjohn Company

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

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

## **APS Sustaining Associate Members**

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

Abbott Laboratorics Alliance Pharmaceutical Corporation American Medical Association Axon Instruments, Inc. Berlex Biosciences \* Boehringer Ingelheim Boeing Defense & Space Group Burroughs Wellcome Company Coulbourn Instruments, Inc. Dagan Corporation

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## **People and Places**

Previously with Sandoz Research Institute, East Hanover, New Jersey, **Douglas A. Young** is now with Bristol-Myers Squibb Research Institute of Princeton, New Jersey. Young has assumed responsibilities as Group Leader in the Department of Metabolic Diseases.

Jan E. Schnitzer, formerly at the University of California, San Diego, has moved to the Department of Pathology, Harvard Medical School, Beth Israel Hospital in Boston, Massachusetts.

Jeffrey C. Smith has moved to the Laboratory of Neural Control, National Institute of Neurological and Communicative Disorders and Stroke at the National Institutes of Health. Smith was formerly with the Systems Neurobiology Laboratory of the University of California, Los Angeles.

Formerly at the University of California, San Diego, **Donald E. Bebout** has accepted an appointment in the Department of Biological Sciences, University of Northern Colorado, Greeley.

Lewis B. Kinter has moved from SmithKline Beecham Pharmaceuticals in King of Prussia, Pennsylvania, to the Department of Laboratory Animal Resources of Sterling Winthrop, Inc. in Collegeville, Pennsylvania.

Moving from State University of New York, Buffalo, Steven M. Simasko has accepted a position in the Department of VET and Comparative Anatomy, Pharmacology and Physiology, Washington State University.

APS member **David G.L. Van Wylen**, who has been at the State University of New York, Buffalo, has moved to the Department of Biology, St. Olaf College, Northfield, Minnesota.

Formerly at the University of Southern Mississippi, Walter R. Thompson has recently accepted a position as professor and Director of the Center for Sports Medicine at Georgia State University, Atlanta.

Enrico Stefani, who has been at the Baylor College of Medicine, Houston, Texas, is now in the Department of Anesthesiology at the School of Medicine, University of California, Los Angeles.

APS member **Jerod M. Loeb** now holds the position of Director of Research and Evaluation, Chief Scientific Officer with the Joint Commission on Accreditation of Healthcare Organizations, located in Oakbrook Terrace, Illinois. Loeb was formerly with the American Medical Association in Chicago.

Formerly with the Department of Pharmacology, University of Heidelberg, Germany, **Rainer Rettig** has moved to the Department of Physiology, University of Greifswald, Germany.

**Richard L. Hebert**, formerly affiliated with the Department of Physiology at the University of Ottawa, Ontario, Canada, has now accepted an appointment in the Department of Medicine at the same institution.

**Eileen Zerba** is now at the Department of Biology, Colgate University, New York. She had been at the University of Michigan.

Now with the Department of Anesthesiology at Henry Ford Hospital, Detroit, Michigan, Joseph D. Fernstermacher was formerly with the Department of Neurosurgery, State University of New York, Stony Brook.

Assad Muhyddini Taha has moved from the Medical College of Ohio in Toledo to the Department of Surgery at the American University of Beirut in New York.

APS member **Yih-Loong Lai** is now with the College of Medicine, Na-

tional Taiwan University, Taipei. Lai was formerly with the Tobacco and Health Research Institute at the University of Kentucky, Lexington.

Erminio Costa has moved to the Nathan Kline Institute, Orangeburg, New York. Costa was previously Director and professor of Pharmacology with FIDIA, Georgetown Institute for Neuroscience, Washington, D.C.

Sharon R. Inman has accepted an appointment as research associate with the Department of Urology at the Cleveland Clinic Foundation. She was previously at the University of Louisville, Kentucky.

## Humboldt Foundation Makes Awards to APS Members

The Alexander von Humboldt Foundation of Bonn Germany, a privately charted foundation funded by the German Federal Government, recently announced recipients of awards to promote international research collaboration. APS members, Alan F. Hoffman and Kim E. Barrett, received funding for a German post-doctoral researcher under the Feodor-Lynen program. This program enables young German postdoctoral researchres to spend up to three years in the United States with Humboldt former Fellows and Awardees acting as hosts and mentors.

Additional information about this and other programs of the Foundation can be obtained from: Dr. Bernard Stein, the Alexander von Humboldt Foundation, Suite 903, 1350 Connecticut Ave., N.W., Washington, D.C., 20036; Tel: (202) 296-2990; Fax: (202) 833-9514.

### NAS Elects APS Members

On April 26, the National Academy of Science announced the election of 60 new members and 15 foreign associates from 10 countries in recognition of the distinguished and continuing achievements in original research.

Election to membership in the Academy is considered one of the highest honors that can be accorded a U.S. scientist or engineer. The total number of current active members is 1,710. Foreign associates are nonvoting members of the Academy with citizenship outside the United States. The Academy has a total of 300 foreign associates.

APS members elected to NAS membership during the 131st annual meeting include Mary Ellen Avery,



Mary Ellen Avery

Harvard Medical School, and **Roger A. Nicoll**, University of California, San Francisco.

Mary Ellen Avery was born in Camden, New Jersey, and graduated from Wheaton College, Massachusetts, in 1948, and The Johns Hopkins Medical School, in 1952. Avery was appointed to the faculty of Johns Hopkins in 1960 and became the Eudowood Associate Professor of Pulmonary Disease of Children in 1965. In 1969, she became Professor and Chairman of the Department of Pediatrics at McGill University and in 1974, she was appointed Thomas Morgan Rotch Professor of Pediatrics at Harvard Medical School. Some of her previous awards and honors include John and Mary Markle Scholar in Medical Science, the Mead Johnson Award for Pediatric Research, and the Edward Livingston Trudeau Medal from the American Lung Association. Avery has also received a number of honorary degrees. In 1991, she received the National Medal of Science from President Bush in a White House ceremony. She is a member of the Institute of Medicine and the American Academy of Arts and Sciences.

Mary Ellen Avery has served on many editorial boards including *Pediatrics, The American Journal of Physiology, Medicine, The New England Journal of Medicine,* and *Clinical and Investigative Medicine.* She has had major appointments in professional societies, including the Presidency of the Society of Pediatric Research in 1972, and was President of the American Pediatric Society, 1990-1991.

Her research interests have included respiratory problems of the newborn, pulmonary surfactant, and the control of breathing. Avery's original observation that the immature lung was deficient in surfactant was a landmark in understanding respiratory distress syndrome (hyaline membrane disease), and led to new strategies for its treatment and prevention. For the past 35 years, Avery has remained in the forefront of research in this area, continuing to make broad and significant contributions in respiratory physiology in the newborn infant.

### **Farewell Lorraine!**

After seventeen years, Lorraine Tucker, Executive Assistant to the Executive Director, has decided to hangup her steno pad and take early retirement. Lorraine has guided APS Presidents, Councillors, and Executive Directors through countless meetings, serving as the unofficial Society historian, gently reminding us what the Bylaws allow us to do and ensuring that we not re-create the wheel more than two or three times a year. Lorraine joined the APS staff in 1977 after spending twenty years in a similar position at the American Institute of Biological Sciences.



Lorraine Tucker

When informed of her retirement, many of the presidents with whom Lorraine worked expressed their warm feelings for Lorraine and her contributions to the Society. **Bodil Schmidt**-

#### **People and Places**

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

Nielsen commented that "her gracious presence and never failing interest in the members of the Society has greatly contributed to making it an ongoing pleasure and a memorable experience to be a member of APS." Shu Chien remembered visiting the APS Headquarters at the meetings as a relatively young APS member and seeing Lorraine "giving advice with such warmth and pleasure that made a new member feel very much at ease and feel a sense of belonging." Fran Haddy remembered the "spirited discussions" that took place around the Council table and how Lorraine served as "the Leavening force", "not only did she keep track of our ramblings but she also smoothed the waters and guided us back to the proper topic without our knowing it had been done."

All the presidents who worked with Lorraine were astonished by her "equanimity in the face of the parade of quirky personalities who have been elected president of our fair Society." However, Harvey Sparks said it best when he wrote, "What a gang of characters, each with an amazing ego, absolute certitude about the right way to do things, and all of the common sense the public attributes to the best professors. Each year Lorraine welcomed the new president as if he were the first, and simultaneously helped the has-beens feel that they had not been completely forgotten." After seventeen years of service, William Dantzler noted that Lorraine's "corporate memory will be hard to replace." But most importantly, Brian Duling expressed the view that it will be "difficult to move the meetings at all without the constant goading that we all derive from those looks. That's when Lorraine would stare at the President or the Executive Director with a look indicating that we have said enough about this, and we should move on."

The entire APS family wishes Lorraine Tucker the best on her retirement. As Executive Assistant to two Executive Directors, **Orr E. Reynolds** and **Martin Frank**, and to countless Presidents and Councillors, she has provided the Society with all of the support they could ask for and helped to nurture the science of physiology.

## 33rd IUPS Congress St. Petersburg, July 1997

The Executive Committee of IUPS recently met in St. Petersburg with the XXXIII Congress Organizing Committee, Chaired by S.V. Medvedev and the Chair of the Scientific Program Committee, P.V. Simonov to discuss plans for the Congress.

The Organizing Committee is deciding between two possible venues for the Congress. One possibility is LENEXPO, a typical Exhibition Complex, and the other, the Technical University. At present the Organizing Committee is leaning toward the University site, which has a number of advantages, not the least of which is the ambiance of a university campus. The University has student dormitories of a sufficient quality to accommodate those interested in low cost housing. It has adequate numbers of lecture halls and classrooms and a good site for poster displays. A number of good tourist hotels are within a 15-minute subway ride of the University. Executive Committee members stayed in a representative tourist hotel charging \$75 per night and were satisfied with the accommodations, including restaurant service. They also used the subway system and found it to be more than adequate.

The organizers have decided to follow the example set in Glasgow, holding Satellite Meetings within the Congress. This was viewed as a major success of the Glasgow meeting. The Scientific Program Committee, chaired by P. Simonov (Moscow) and including three members of the American Physiological Society (Allen Cowley, Donald Pfaff and Stanley Schultz, Vice Chair), will begin its work immediately. They will meet in St. Petersburg in the Spring of 1995 to construct the program. Ideas for satellite meetings within the Congress, symposia, lectures, etc., will be solicited from physiologists throughout the world via IUPS Commissions and national societies.

Executive Committee members left St. Petersburg with the strong impression that the XXXIII International Congress will be a great success. In addition to presenting an unusual opportunity for scientific exchange with Eastern European physiologists, St. Petersburg offers a unique cultural heritage, which includes the Institute where Pavlov worked, the Hermitage Museum, and the Kirov Theater. It is time to begin planning for this extraordinary event.

## Defense Women's Health Research Program

The US Army Medical Research, Development, Acquisition and Logistics Command has released a Broad Agency Announcement (BAA) on June 24, 1994 soliciting proposals for original medical research from all biomedical disciplines on issues of importance to the health and performance of servicewomen. Approximately \$10 million are available for the program. The BAA identifies eleven specific research areas of interest, some of which include nutrition and intense physical activity as factors. The deadline for applications is August 31, 1994. Copies of the BAA and all necessary application forms may be obtained from:

Commander

US Army Medical Research, Development, Acquisition and Logistics Command ATTN: SGRD-ACQ-BA Fort Detrick, Frederick, MD 21702-5012 Telephone: (301) 619-7216

Chief Scientist, Crew Systems (ST 94-A-1). The Air Force Materiel Command (AFMC) invites applications from leading scientists and engineers interested in exploiting revolutionary technologies and guiding the in-house research activities of the Air Force laboratories in several technology areas. These individuals will constitute the creative force for new military technology-the core of Air Force warfighting superiority in the 21st century. The chief scientist serves as the AF scientific and technical authority for basic research and exploratory and advanced development in human systems technology focusing on human performance, man-machine integration, biodynamics and crew protection at Armstrong Laboratory, Brooks Air Force Base, San Antonio, TX. Candidates should demonstrate contributions and professional standing as evidenced by citations, patents, publications, honors, and leadership activity in their field; originality and creativity in the resolution of scientific problems; and significant academic achievement-normally, a doctorate degree. Salary range is \$82,401-\$119,275. Contact: Call AFMC senior Civilian Management Office, 513-257-1094 or DSN 787-1094 for announcement ST 94-A-1 for specific qualification requirements and application procedures. Application deadline: August 15, 1994. [EOAAE]

Health Scientist Administrators. The Division of Research Grants, National Institutes of Health invites inquiries into special employment opportunities as health scientist administrators of student sections in various scientific fields. Study sections, managed by health scientist administrators, provide the initial review for technical and scientific merit of research grant applications submitted to NIH.

The Division is seeking individuals with proven independent research experience in the general fields of cardiovascular sciences, cardiovascular, pharmacology, renal and vascular smooth muscle, and physiology. Individuals must be US citizens and have a PhD degree or equivalent. A Health Scientist Administrator Notice of Rating from the Office of Special Examiner, NIH, is required. Further information and qualification requirements can be obtained by contacting the Personnel Office, Division of Research Grants, National Institutes of Health, 5333 Westbard Avenue, Rm 438, Bethesda, MD 20892. [EOAAE] **Postdoctoral Research Fellowship**. Postdoctoral research fellowships are available for the study of eating and its disorders. Full-time postdoctoral research training fellowships in the mechanisms underlying food intake are available beginning immediately at the Johns Hopkins University School of Medicine. Individual research projects can focus on molecular, neurochemical, physiological, neurophysiological, or behavioral research. Fellowships are usually awarded for two years. Minorities are encouraged to apply. Send letters of interest, CVs, and names of three references to: Timothy H. Moran, Johns Hopkins University School of Medicine, Department of Psychiatry and Behavioral Sciences, 720 Rutland Avenue, Ross Building, Room 618, Baltimore, MD 21205. [EOAAE]

#### **Positions Available**

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

A check or money order payable to the American Physiological Society must accompany the position listing. Purchase orders will not be accepted unless accompanied by payment. Ads not prepaid will not be printed. Copy must be typed double spaced and is limited to 150 words. All copy is subject to the editorial policy of The Physiologist. EOAAE indicates Equal Opportunity/Affirmative Action Employer and appears only when given on original copy. Copy deadline: copy must reach the APS office before the 15th of the month, two months preceding the month of issue (e.g., before February 15th for the April issue). Mail copy to APS, The Physiologist, 9650 Rockville Pike, Bethesda, MD 20814-39911.
## Muscles, Masses & Motion: The Physiology of Normality, Hypotonicity, Spasticity and Rigidity

E. Geoffrey Walsh New York, NY: Cambridge University Press, 1993, 220 pp., illus., index, \$59.95. ISBN: 0-521-43229-4.

Muscles, Masses and Motion is truly an unusual book. E. Geoffrey Walsh, according to the foreword, is a painter, saxophonist, and amateur radio enthusiast who drives a homemade steam car around Edinburgh and is best known as the author of an excellent textbook of physiology. Now he has used his talents to detail a life-long interest in the mechanics of the limbs and body, presenting his own experiments plus a wealth of observations, quotes and illustrations by others over the last few centuries. The first three pages include quotes from the Sunday Express, Howell's Textbook of Physiology (1905), The Village Blacksmith by Longfellow, Medieval English Medicine by Rubin, John Hunter's 1837 Croonian lecture and an illustration from Darwin's Expression of the Emotions and Gowers illustration of a man with bilateral ptosis due to tabes dorsalis. If there is ever a version of Trivial Pursuit that has questions on biomechanics, this is a great source book.

The author's interest however, is to achieve a higher goal than intellectual entertainment. He wants us to learn how to study biomechanical problems. He takes us step by step through a series of his experiments measuring responses to perturbations of various joints to define normal and then pathological conditions such as hypotonicity, spasticity, and rigidity. The diagrams of the equipment he constructed and used to record limb movements are clear enough to be used as blueprints. The illustrations of results are likewise clear and elegant.

What is hard to understand in all of this is where the nervous system comes into play. We are warned in the foreword that this is not a treatise on neurophysiology, and it clearly is not: the EMG responses are rarely found, just torque, displacement, velocity. The biomechanical responses are the main subject even in clinical studies. Spasticity is seen as a condition defined in terms of changes in joint resonant frequency. The links between injury to the brain or spinal cord, abnormal muscle control and abnormal joint characteristics are never drawn. (It is almost as if the nervous system did not exist.) The result is a Descartian mechanism with the ghost missing. Limbs are pushed and resist mechanically, but the willful nervous system is not there. While this approach is good for understanding some clinical problems like how chronic changes in muscle, tendon, or bone can create abnormal responses to passive movements, it is not helpful in explaining spasticity or hypotonia. These abnormalities are due to lesions in the nervous system that change neural circuits and consequently voluntary as well as passive joint movements.

*Muscles, Masses and Motion* is a book purposely limited in scope and devoted primarily to the author's own view of biomechanics developed from his work as an experimentalist. It abounds in interesting observations, illustrations, and quotes. The teacher who lectures on the motor system could well spice up his tales with information from this book (how the kangaroo hops so well, page 167, or why the woodpecker does not lose his eyes, page 171). The experimentalist might enjoy the diagrams of mechanical systems, but the clinician will be frustrated by the missing nervous system.

Richard D. Penn, M.D. Rush Medical School, Chicago, IL

## Cell and Molecular Biology of the Testis

Claude Desjardins and Larry L. Ewing (Editors) New York, NY: Oxford University Press, 1993, 497 pp., illus., index, \$125.00. ISBN: 0-19-50629-8.

This book contains a unique collection of reviews on cell and molecular biology of the testis contributed by leading investigators in diverse aspects of male reproductive biology. The book appropriately begins with an excellent chapter by Joanne Orth on the cell biology of testicular development in the fetus and neonate. Issues pertaining to the origin and development of various prominent testicular cell types are presented with an emphasis on the paracrine and endocrine regulation of these processes. Sinclair, Palmer, Berta, Ellis, and Goodfellow present information in the second chapter concerning the molecular genetics of the human and mouse Y-chromosome. Information concerning the genetic mapping of the Y chromosome as well as the history of the candidate genes for controlling sex determination are presented.

In chapter 3, John McCarrey presents a review on the development of the germ cell with an emphasis on the genetics of this most complicated process. Curtis Chub next discusses the genetic control of spermatogenesis and steroidogenesis. He clearly presents very useful information concerning the phenotypic consequences of gene mutations with specific references to a large variety of mouse strains. In the next section by Lee, Kuroda, and Donahue, mullerian inhibiting substance is reviewed. The effects of mullerian-inhibiting substance on regression of mullerian ducts as well as the extra-mullerian function of this substance are presented. In chapter 6, Claude Desjardins discusses the design and function of the microvasculature of the testis including a very interesting section concerning the role of the microvasculature in controlling testicular function.

In chapter 7, Ewing and Keeney present a review on the structure and function of Leydig cells. The first part of the chapter emphasizes that Leydig cells produce a variety of peptides as well as testosterone; an area that commonly is excluded from reviews on the Leydig cell. In the second part of the chapter, the authors review more traditional topics including the genetics, enzymology, and regulation of steroidogenesis. Next, Barry Zirkin examines issues concerning the regulation of spermatogenesis in adult mammals. This is a particularly well done review that not only summarizes past kcy studies but also highlights important unanswered questions about the regulation of spermatogenesis.

The chapter on the cell biology of Sertoli cells by Bardin, Gunsalus, and Cheng focuses on the secretory products of Sertoli cells. The actions of these products, as well as products from other testicular cell types, are also discussed with respect to their roles in cell-cell interactions in the testis. In Chapter 10, the regulation, production and mechanisms of action of inhibin and inhibin-related proteins are presented by Robertson, Risbridger, and de Kretser. These authors do a fine job of summarizing a rapidly advancing area of study. Hinton and Turner next present a review concerning the characterization and regulation of the microenvironment of the seminiferous tubule. The sections pertaining to the structure and function of the blood-testis barrier are particularly well done.

The chapter on spermatogonial stem cells by Meistrich and van Beek begins with a clear description of the fundamentals of spermatogonial stem cell biology. Model systems for the study of this most intricate process are then reviewed followed by a discussion of the paracine and endocrine regulation of stem cells. In the final section, the expression of spermatogonial genes is discussed. Stern next presents a review of meiosis including sections on chromosomal behavior and metabolic events during meiosis, processes in meiotic recombination, and interactions between spermatocytes and somatic cells. Clermont, Oko, and Hermo present a very complete and authoritative review on the cell biology of mammalian spermiogenesis. Results from both morphological and biochemical studies are skillfully blended in this review.

In chapter 15, William Wright discusses cellular interactions in the seminiferous epithelium emphasizing the role of extracellular matrix and paracrine mechanisms in the testis during fetal and postnatal maturation. In chapter 16, Norman Hecht presents a chapter on gene expression during germ cell development. This chapter focuses on fundamental research questions and molecular biological approaches concerning the study of germ cell differentiation. Wolgemuth, Gruppi, Vambutas, and Wadewitz next review the expression and potential function of oncogenes and heat shock protein genes as related to germ cell development. The section describing various molecular strategies that can be used to study the role of heat shock genes during germ cell development will be very useful to investigators desiring a clearly presented overview of such methods. In Chapter 18, Diana Miles reviews sperm cell surface proteins of testicular origin.

The emphasis of this review is on composition of the surface proteins and their organization during the differentiation of the germ cells. In the final chapter, Kenneth Tung presents an excellent review of the regulation of testicular autoimmune disease. Models of autoimmune disease, mechanisms regulating the autoimmune response in the testis and the relationship between autoimmune disease and infertility are reviewed. In the Preface, the editors state their goal: "We shared the goal of producing a book that would be a source of advice for beginners and afficionados alike, and would promote investigators to apply new methodologies to study regulatory mechanisms in testicular cells, provide an easily assimilated synthesis of current thinking and point to the direction of important new areas of research." In my opinion, this goal has been achieved! James C. Hutson, Ph.D.

Texas Tech University, Lubbock, TX

## **BOOKS RECEIVED**

An Introduction to Membrane Transport and Bioelectricity: Foundations of General Physiology and Electrochemical Signaling. Second Edition. John H. Byrne and Stanley G. Schultz. New York, NY: Raven Press, 1994, 208 pp., illus., index, \$38.00. ISBN: 0-7817-0201-1.

*Biomechanics and Cells.* F. Lyall and A.J. El Haj (Editors). New York, NY: Cambridge University Press, 1994, 275 pp., illus., index, \$74.95. ISBN: 0-521-45454-9.

Cavernous Malformations. Issam A. Awad, and Daniel L. Barrow, (Editors).

Park Ridge, IL: AANS, 1993, 224 pp., illus., index, \$90.00. ISBN: 1-879284-07-3.

Dural Arteriovenous Malformations. Issam A. Awad and Daniel L. Barrow (Editors). Park Ridge, IL: AANS, 1993, 253 pp., illus., index, \$90.00. ISBN: ISBN: 1-879284-06-5.

Physiology by Numbers: An Encouragement to Quantitative Thinking. R.F. Burton. New York, NY: Cambridge University Press, 1994, 185 pp., illus., index, \$59.95. ISBN: 0-521-42067-9. Principles of Exercise Testing and Interpretation. Second Edition. Karlman Wasserman, James E. Hansen, Darryl Y. Sue, Brian J. Whipp, Richard Casaburi. York, PA: Lea & Febiger, 1994, 479 pp., illus., index, \$59.50. ISBN: 0-8121-1634-8.

The Pulmonary Circulation and Gas Exchange. Wiltz W. Wagner, Jr. and E. Kenneth Weir (Editors). Armonk, NY: Futura Publishing Company, Inc., 1994, 424 pp., illus., index, \$75.00. ISBN: 0-87993-572-3.

## **Scientific Meetings and Congresses**

Society of General Physiologists Annual Symposim, September 8-11, 1994, Woods Hole, MA. Information: Society of General Physiologists, PO Box 257, Woods Hole, MA 02543-0257.

First World Congress on High Altitude Physiology and Medicine, September 12-16, 1994, La Paz, Bolivia. Information: John C. Triplett, Chairman, World Congress on High Altitude Medicine and Physiology, US Embassy La Paz, APO AA 34031. Tel: 591-2-350-251; fax: 591-2-359-875.

XIII International Bile Acid Meeting: Bile Acids in Gastroenterology, September 30-October 2, 1994, San Diego, CA. Information: Cass Jones, Professional Conference Management, Inc., 7916 Convoy Court, San Diego, CA 92111. Tel: 619-565-9921; fax: 619-565-9954. American Association of Cardiovascular and Pulmonary Rehabilitation Ninth Annual Meeting, Portland, OR, October 6-9, 1994. Information: Alice Holbrow, AACVPR, 7611 Elmwood Avenue, Suite 201, Middleton, WI 53562. T. T 608-831-6989; fax: 608-831-5122.

Neuroimmunomodulation: Stress and Immune Function (The Lovelace Institutes - Annual Scientific Symposium), Albuquerque, NM, October 7-9, 1994. Information: Lettie Dupuy, Education Coordinator, The Lovelace Institutes, 2425 Ridgecrest Drive SE, Albuquerque, NM 87108-5127. Tel: 505-262-7746 or 505-262-7768.