



The Physiologist

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Employment of 1996-97 Doctoral Graduates in Physiology by Marsha Lakes Matyas and Martin Frank

In 1995, the APS launched an annual study of recent doctoral recipients in physiology (1). This ongoing study is part of a cooperative project involving more than a dozen professional societies and is coordinated by the Commission on Professionals in Science and Technology (CPST). Highlights from the project are available at the Science Next Wave web site (2). The project has been supported by grants from the NSF and the Alfred P. Sloan Foundation and offered the APS an opportunity to establish a database for monitoring the flow of students from graduate studies through postdoctoral positions and into permanent professional positions.

Ultimately, the establishment and maintenance of this data base will allow us to answer many of the questions that students and their mentors have about the employment of PhD recipients in physiology. In 1998, APS reported the findings of the first year of the study (1995-96 graduates) (1). In the following report, highlights of the data from the second year of the study (1996-97 graduates) are presented.

Methodology

In conjunction with the Association of Chairs of Departments of Physiology (ACDP), the APS collected the names and addresses of students who had earned their doctoral degrees in physiology between July 1, 1996 and June 30, 1997. Follow-up telephone calls to the departments and to students' faculty advisors helped fill in missing information. Overall 119 of the 145 physiology departments responded (response rate = 82%), providing the names of 247 graduates. According to the NSF Survey of Earned

Doctorates (3), the number of PhD degrees awarded in "human/animal physiology" was 275 in 1996 and 225 in 1997. Therefore, we can be reasonably sure that the pool of doctoral degree recipients used in our survey ($n=247$) includes the large majority of students earning a PhD degree in human/animal physiology in the year surveyed.

The initial APS survey was sent to the 238 graduates for whom a mailing address was available, with a cover letter indicating that respondents would receive a \$15 APS gift certificate for completing and returning the survey. A total of 222 surveys were successfully mailed. Reminder postcards and a second mailing of the survey to non-respondents helped increase the overall response rate. Surveys were returned by 128 graduates (58%).

Results

Demographics

Of the 128 respondents, 36% were women and 64% were men. Mean age of the respondents was 33.3 years; this was similar to the 1995-96 graduates (1). A third of the respondents (33%) indicated they were Asian or Pacific Islander, but there were no American Indian/Alaskan Natives and few Black/African American (4%) or Hispanic (5%) respondents. Due to the small number of minority doctoral degree recipients, the remaining survey data are not reported here by racial/ethnic group. In the coming year, we plan to pool the data for the first three years of the survey and do an analysis of the three-year results by racial/ethnic group.

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Graduate Employment Survey

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Over half of the respondents were US citizens (62%); this was similar to the 1995-96 data. Among non-US citizens, half (49%, $n=19$) held permanent resident status and half (51%, $n=20$) had temporary visas. In the previous year, non-US physiology doctoral recipients were more likely to have permanent residence status (61%) than to hold temporary visas (39%).

Respondents, on average, took 5.5 years to complete their doctorate (median = 5.6 years) (Fig. 1); this was only slightly higher than the 1995-96 mean of 5.2 years. More than 70% completed their PhD studies in less than six years and only 12% required seven or more years to earn their degree. Women took slightly longer than did men to complete their doctoral degree (5.7 years, on average, versus 5.4 years for men).

Unemployed Graduates

Survey respondents were asked to indicate whether they had been employed ("working for pay") during the week of October 14, 1997, that is, 3-15 months after receipt of their doctoral degree. This date was the *survey target date* and was used throughout each of the 13 societies' surveys to gain a snapshot of what graduates were doing at this time. The use of a survey target date also allowed for comparisons of data from the participating professional societies. The large majority of responding

Table 1. Employed Graduates by Permanence of Employment and Year

Type of Employment	Respondents			
	1995-96 Graduates		1996-97 Graduates	
	%	No.	%	No.
Permanent	25	39	32	38
Temporary (detail below)*	75	116	68	81
<i>Postdoctoral position</i>	68	105	59	70
<i>Other</i>	7	11	8	10

*1996-97 data missing from one non-respondent.

physiology PhD recipients (94%) indicated that they were employed on the survey target date. Only 6% ($n=7$) indicated that they were unemployed. One respondent declined to indicate his/her employment status. Results were similar for male and female respondents.

Among the seven PhD recipients who were unemployed on the survey target date, only one was actively seeking employment at that time (<1% of respondents). Three indicated that they had found employment since the target date, one was enrolled in medical school, and two cited "other" situations. These findings were similar to those of the previous year's survey.

Employed Graduates

As stated earlier, the large majority of survey respondents (94%, $n=120$) were employed on the target date. These

respondents completed a series of questions about the type of employment they held on the target date and about how they obtained this position.

Characteristics of the Employment

Nearly all of the employed 1996-97 graduates (99%) were in full-time positions. About two-thirds of graduates were in temporary positions, primarily postdoctoral positions (Table 1). Notably, however, nearly one-third of recent PhDs in physiology described their employment as a "permanent position." This finding is similar for male and female graduates and is higher than among 1995-96 graduates (25%).

As shown in Table 2, most respondents were employed in educational institutions (79%); they worked primarily in professional schools (53%) and four-year colleges and universities (43%). Other non-profit institutions (10%), government (5%), and business/industry (3%) also employed survey respondents. Only one respondent was self-employed (1%). The distribution of graduates among the major employment sectors was similar for men and women.

More than three-fourths (77%) of employed respondents were engaged primarily in research training (Table 3). Women (90%) were somewhat more likely than men (73%) to be primarily engaged in research. Conversely, 10% of male respondents, but none of the female respondents, listed professional

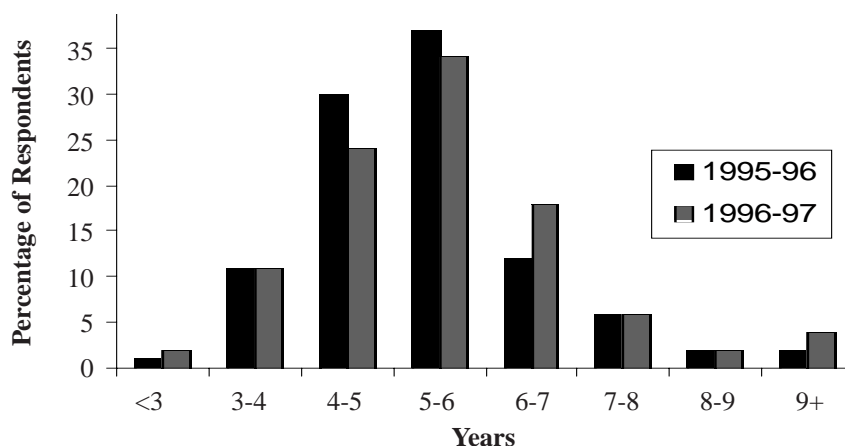


Figure 1. Time to completion of doctorate

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Graduate Employment Survey

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service as their primary work activity.

Employed graduates also reported their annual salary; this data is reported by broad employment sector in Table 4. The median annual salary for all graduates was \$25,000. Salaries ranged from \$12,000 to \$120,000, but 75% of graduates received \$30,000 or less annually. For graduates employed as postdoctoral students, the median salary was

\$24,500 (range = \$18,000 to \$40,000). For graduates who were not in postdoctoral positions, the median salary was \$31,500. Median salaries for 1996-97 postdoctoral students and those in permanent positions were similar to those for 1995-96 graduates (\$24,000 and \$32,000, respectively).

The expected duration of the graduates' positions was also explored (Table 5). Nearly 75% of graduates expected

their position to last three years or less. Nearly half (44%) of respondents indicated that the position they held would last 2-3 years. Most of the respondents who answered "other" indicated that they were still in the same position at the time they completed the survey.

Finally, graduates responded to questions concerning their perceptions of the position they held on the target survey date (Table 6). They rated several statements on how they perceived their position; ratings ranged from *Strongly Agree* (value = 5) to *Strongly Disagree* (value = 1). Respondents felt strongly that the position they held on the target date was: related to their field (78% answered *Strongly Agree* or *Agree*). They also felt their position was commensurate with their education (79% answered *Strongly Agree* or *Agree*). Finally, they felt the position was professionally challenging (82% answered *Strongly Agree* or *Agree*). These responses were very similar to those of the previous year's graduates. Like their predecessors, the current graduates did not respond as positively to the statement, *The position was similar to what I expected to be doing when I began my doctoral program* (71% answered *Strongly Agree* or *Agree*).

Graduate Job Search Strategies

Employed graduates also were asked about their job search strategies and the length of their job search. Overall 72% of the respondents spent four months or less actively seeking employment (Fig. 2). The average number of months spent was 2.7 months (median = 2; range = 0 to 12 months). This is less time than the previous year's graduates spent searching; 1995-96 graduates spent an average of 3.4 months (median = 3; range = 1 to 19 months) actively seeking employment. Like the previous year's graduates, the average job search time for men (3.6 months) was greater than for women (2.1 months).

Graduates were presented with a list of job search methods/strategies and

Table 2. Employed Graduates by Employment Sector and Year

Employment Sector	Percentage of Respondents	
	1995-96 Graduates	1996-97 Graduates
Educational institution	82	79
Government	3	5
Other non-profit	8	10
Business/industry	4	3
Self-employed	1	1
Other	1	2

Table 3. Primary Emphasis of Employed Graduates' Position, by Year

Primary Emphasis of Fellowship	Percentage of Respondents	
	1995-96 Graduates	1996-97 Graduates
Research training	85	77
Clinical service	4	10
Both research and practice	4	4
Other	7	9

Table 4. Median Annual Salary of 1996-97 Employed Graduates, by Broad Employment Sector

Employment Sector	Median Annual Salary (in thousands)		
	All 1996-97 Graduates		
	Median	Range	n
All educational institutions			
<i>Educ. Inst. (9-10 mos.)</i>	\$33.5	23.0 - 48.0	8
<i>Educ. Inst. (11-12 mos.)</i>	24.0	12.0 - 100.0	72
Government	31.5	24.6 - 120.0	6
Other non-profit	26.0	22.0 - 40.0	12
Business/industry	37.4	33.3 - 60.0	4
Self-employed	52.0		1
Other	42.5	25.0 - 60.0	2
TOTAL	25.0	12.0 - 120.0	120

Graduate Employment Survey

Table 5. Expected Duration of Employed Graduates' Positions, by Year

Duration of Position	Percentage of Respondents	
	1995-96 Graduates	1996-97 Graduates
3 months or less		1
4-11 months	3	6
12-23 months	13	24
2-3 years	55	44
More than 3 years	12	16
Other	6	7
Not sure	11	2

asked initially to check *all* the methods they used and then to indicate which method they felt was most effective. The most commonly used job search methods were information/contacts through the faculty advisor (59%) and through colleagues and friends (49%) (Table 7). Sending unsolicited vitae also was commonly used among the graduates (32%), as was responding to advertisements in newsletters, magazines, and journals (39%). Male and female graduates chose similar methods.

When asked about the job search method they thought was most effective, the majority of respondents cited the faculty advisory (31%) or colleagues/friends (23%) (Table 7); these results were very similar to those of 1995-96 graduates.

Conclusions

The 1996-97 data were very similar to those gathered in 1995-96. Overall, unemployment does not appear to be a

critical issue for physiology PhD recipients in terms of their first position after completing their graduate studies; only one (<1%) of the responding 1996-97

spent less than two months actively searching for their first position and more than 75% of graduates spent less than five months or less searching. The graduates reported that networking continues to be the most important job search strategy; the faculty advisor, colleagues, and friends were the best source of job information for most of the graduates.

The large majority of graduates found positions that they described as "related to [their] field" (78%) and "commensurate with [their] education and training" (79%). Nearly all of the graduates were employed in full-time positions. For two-thirds of graduates, their first position was a temporary one,

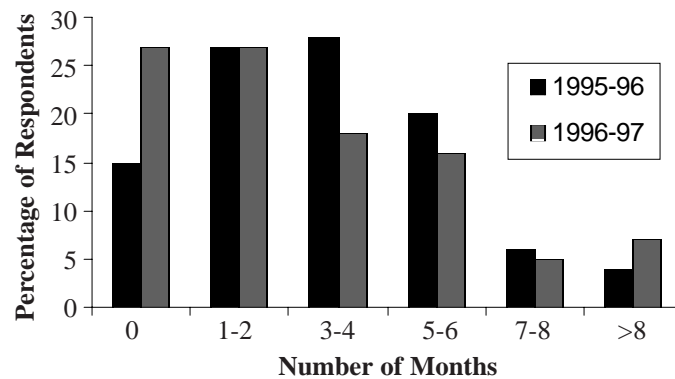


Figure 2. Number of Months Employed Graduates Spent Actively Looking for Employment, by Year

graduates was still seeking employment at the time of the survey. Graduates spent a limited amount of time actively searching for their first position. More than half of the 1996-97 graduates

typically a postdoctoral studies position. Median salary for physiology postdoctoral students (\$24,500) was similar to that in other related fields including biochemistry (\$25,250); chemistry (\$25,000); microbiology (\$26,000); and psychology (\$22,500) (2).

Nearly one-third of the physiology degree recipients accepted what they described as a "permanent" position after graduate school; a similar result was found among the 1995-96 graduates (25%). The magnitude of this percentage is somewhat unexpected since the traditional career pathway for physiologists has been to complete a temporary, postdoctoral training period after

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Table 6. Employed Graduates' Perceptions, by Year

Statement	Percentage Responding Strongly Agree/Agree	
	1995-96 Graduates	1996-97 Graduates
The position was related to my field.	80	78
The position was commensurate with my education and training.	79	79
The position was similar to what I expected to be doing when I began my doctoral program.	63	71
The position was professionally challenging.	83	82

Graduate Employment Survey

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Table 7. Job Search Methods Used by Employed Graduates, by Year

Job Search Methods	Percentage of graduates....			
	...using this job search method		...finding this the most effective job search method	
	1995-96	1996-97	1995-96	1996-97
Faculty advisor	62	59	32	31
Informal channels (colleague or friend)	55	49	24	23
Newspaper advertisement	15	15	1	1
Newsletter, magazine, or journal	35	39	10	7
Placement service	13	15	3	4
Employment agency	1	1		
Met employer through former job/position	14	16	8	62
Sent unsolicited vita	35	32	15	10
Received unsolicited offer	7	8		1
Electronic resource	13	15	4	9
Other	9	11	4	6

the receipt of the doctorate. An examination of their individual responses showed that they took positions in business ($n=5$), as clinicians or clinician/researchers ($n=3$), in teaching at 4-year colleges ($n=3$), and at international institutions ($n=6$).

The status of the 21 remaining “permanent” position holders remains unclear. It is possible that some respondents interpreted the term “permanent” to mean full-time, regular employment such as a postdoctoral fellowship rather than referring to a non-temporary position. This question will be further explored with a follow-up survey to respondents from 1995-96 and 1996-97 who indicated they had a permanent position on the survey target dates. In addition, in future surveys, respondents

who indicate that they held a permanent position will be asked to describe it.

In conclusion, the large majority of physiology students are finding “professionally challenging” positions in a reasonable period of time after completing their doctorate. Furthermore, their salaries are commensurate with those of doctoral recipients in related scientific fields. The APS will continue to gather information on recent doctoral recipients in physiology in future years. In addition, the APS is working with the CPST and other professional societies on the development of a follow-up study of PhD recipients to begin to answer questions about the impact of postdoctoral studies and the transition into permanent positions.

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University of Lund

Diana Troiani
Universita Cattolica Del Sacro Cuore

Shingo Tsuji
Osaka University

Mauro Ursino
University of Bologna

Satoshi Usuki
University of Tsukuba

Peter W. Vaupel
University of Mainz

Carel H. Van Os
University of Nijmegen

Turgen W. Van Teeffelen
John B. Pierce Laboratory

Fang-Jung Wan
National Defense Medical Center

Tobias Wang
University of Birmingham

Michael John White
University of Birmingham

Otto W. Witte
University of Duesseldorf

Accepted Affiliate Applicants

Douglas S. Christie
US Army

David C. Polidori
Entelos, Inc.

Charles Stafford
Astra Medical

Albert Philip Van Duren
Augustine Medical

Accepted Student Applicants

Cassia de Toledo Bergamaschi
Paulista School of Medicine

Jeffrey J. Bishop
University of California-San Diego

Christa Boer
Vrije Universiteit

Deanna Elise Brown
Meharry Medical College

Francisco S. Cayabyab
University of Toronto

Gail Celeste Crawford
Howard University

Dominic Paul D'Agostino
Rutgers University

Veronica Irene D'Annunzio
Universidad de Buenos Aires

Yueming Ding
University of Iowa

Nick Anthony Di Maso
University of California-Irvine

Mary F. Forman
University of Arkansas

Lin Gao
University of Southern California-LA

Carla Deneen Gardner
Meharry Medical College

Laurent Gerard Groc
Henry Ford Health Sciences

Kyle Kenji Henderson
Kansas University Medical Center

Caroline J. Hoang
University of Missouri

Lynelle Rae Johnson
University of Missouri

Kevin M. Kelley
Auburn University

Habibeh Khoshbouei
Univ. of Texas Health Science Center

Michael Anthony Kisley
University of Pennsylvania

Timothy Robert Koves
East Carolina University

Andreas Nils Leffler
Universität Würzburg

Lynda Marie Ludwig
Medical College of Wisconsin

Amanda Catherine Marsm
Univ. of NSW School of Phys. & Pharm.

Nicole Karine McDaniel
University of California-Riverside

Julie Elizabeth McMinn
University of Washington

Heather Mitchell-Felton
Boston University

Raiv Michael Mohan
Oxford University

Melissa Marjorie Morse
Medical College of Wisconsin

Edward Douglas Plowey
University of Illinois-Urbana

Roger Arthur Racine
Michigan State University

Harry Benjamin Rice
Pennsylvania State University

Emily Catherine Rothstein
University of Alabama-Birmingham

Michael H.I. Shiue
University of Southern California

Gerta Sokoloff
University of Iowa

Mark Stephen Taylor
University of South Alabama

Christopher Nicholas Tymchuk
University of California-LA

Prashant Vaishnava
Michigan State University

Gregory Scott Wallace
SUNY-Stonybrook

Loren Eugene Wold
University of North Dakota

Publications

Introducing...Gary C. Sieck

Gary C. Sieck will assume the editorship of the *Journal of Applied Physiology* effective July 1, 1999. He previously served on the editorial board and was an associate editor from 1996-1999.

Sieck is currently a professor in the Department of Physiology and Biophysics and professor and vice chair for research in the Department of Anesthesiology at the Mayo Medical School. He is also chair of the Division of Anesthesia Research and director of the Integrative Physiology Core Laboratory in the General Clinical Research Center at Mayo. Sieck was born in Seward, Nebraska and received a BS degree in Zoology from the University of Nebraska in 1971 and his PhD in Physiology and Biophysics from the University of Nebraska Medical Center in 1976. Sieck moved west to Los Angeles, California in 1973, where he completed his PhD dissertation research at UCLA under the combined direction of Judith Ramaley (Nebraska) and Anna Taylor (UCLA). After postdoctoral training with Ronald Harper at the Brain Research Institute at UCLA, Sieck joined the faculty at the City of Hope National Medical Center, while retaining an adjunct appointment in the Department of Anatomy and Cell Biology at UCLA. In 1987, he joined the faculty in the Department of Biomedical Engineering at the University of Southern California, and in 1990 he moved to the Mayo Clinic.

In addition to his editorial activities on behalf of the *Journal of Applied Physiology*, he has served as an assistant editor of *News in Physiological Sciences*, as a member of the editorial board of the *American Journal of Respiratory and Critical Care Medicine*, and as a member of the international advisory board of *Anesthesiologie*, *Intensivmedizin*, *Notfallmedizin*, *Schmerztherapie*. He was the chair of the Respiratory

Structure and Function Assembly of the American Thoracic Society and a member of the Board of Directors of the American Thoracic Society. In addition, he served as a member of the National



Gary C. Sieck

Council of the American Lung Association. From 1991-1994, he served as a member of the NIH Respiratory and Applied Physiology Study Section, and he has also served as a member and chair of several NIH special emphasis panels and site visit teams. He is currently a member of the Merit Review Board for Respiration in the Department of Veterans Affairs. Sieck has also been a very active member of the APS since 1976. He currently serves on the Program Committee of the Respiration Section as well as on the Steering Committee for this section.

Sieck's research has focused on the physiology of respiratory muscles. In particular, his research has examined neuromuscular interactions underlying the plasticity in neuromotor control associated with early postnatal development and inactivity. He has characterized how alterations in neuromuscular interactions can affect the expression of

myosin heavy chain isoforms in skeletal muscle fibers and thus impact their mechanical performance. He has explored whether neuromuscular adaptations are mediated by changes in neurotrophic factors and their influence on gene regulation. His research has provided evidence that trophic influences produced by motoneurons and muscle fibers underlie the essential match between the functional properties of motoneurons and muscle fibers. In addition to continuing these lines of investigation, his most recent research has focused on the regulation of intracellular calcium in airway and coronary artery smooth muscle and cardiac muscle. His studies in this area have focused on the physiological role of transients in intracellular calcium (e.g., calcium sparks and calcium oscillations), and the involvement of a novel second messenger system, cyclic ADP-ribose, in the dynamic regulation of intracellular calcium release from the sarcoplasmic reticulum. In all these areas, Sieck's research has been well-funded by multiple grants from the NIH.

Sieck has a number of important goals for the journal. In conjunction with his team of associate editors (**Frank Booth, Gregory Cartee, Jerry Dempsey, Sandra England, Rolf Hubmayr, Keith Jones, Michael Joyner, Virginia Miller, Judith Neubauer, Douglas Seals, Stuart Taylor, and Peter Wagner**), Sieck intends to refocus the scope of the journal, emphasizing the very best papers that explore adaptive and integrative physiological mechanisms, particularly those applying cutting edge techniques, including molecular and cellular biology. He and his team view applied physiology as a pyramid, with a broad base in fundamental molecular and cellular research, an intermediate portion integrating basic biological observations into an understanding of organ structure and function including integration

Publications

across physiological systems, and a pinnacle evaluating the whole organism with a focus toward adaptations in human performance. Thus, they believe that applied physiologists integrate biologic information ranging in scale from a few atoms to the whole organism, and thus, confinement to any one scale or class of experimental technique is inappropriate. It is their intention to correct the common misperception within the scientific community that applied physiology is somehow old fashioned and to demonstrate that such research is essential in the translation of basic biological

observations into an understanding of the human body. Toward this end, they will be proactive in attracting original papers that represent major advances in applied physiology, especially those that employ state-of-the-art cutting edge techniques, such as gene transfer, transgenic models, molecular biology, and cellular imaging. He also plans to publish several series of invited mini-reviews that focus on hot topics in applied physiology, succinctly summarizing the current state-of-the-art and providing recommendations for future directions of research. Sieck will con-

tinue the high standards set by his predecessor, **John Remmers**, to ensure a rigorous, fair, and expedient review of research articles submitted to the journal. This will be facilitated by the implementation of online submission and review of manuscripts submitted to the journal. The goals he has set for his editorial team and for the journal will attract the very best research in the broadly defined area of applied physiology, and will clearly establish the *Journal of Applied Physiology* as the premier journal in its field. ♦

Thank You, Brenda!!

After nearly 26 years, Brenda B. Rauner has decided to retire from APS and instead devote herself to her family, travel and tennis, not necessarily in that order. Brenda joined the APS staff in 1973. In 1987, with the sudden death of Stephen Geiger, Brenda was offered the position of Publications Manager and Executive Editor, which she has successfully filled since that time.

Publications are the heart of the American Physiological Society, and Brenda has been the heart of the publications program since 1987. Under her leadership, the APS publications have



Brenda Rauner receives a book of congratulatory letters from APS President L. Gabriel Navar.



Dale Benos, APS Publications Committee Chair, presents Brenda Rauner with a plaque that commemorates her years of service to the organization.

flourished and her contributions to the program will be long lasting. In order to assess Brenda's impact on the Society's publications program, it is worthwhile to reminisce about what it was like during some of the milestones in her career. In 1973, when Brenda joined the APS staff, the journal program produced four journals, *American Journal of Physiology*, *Journal of Applied Physiology*, *Journal of Neurophysiology*, and *Physiological Reviews*. These journals published 925 papers for a total of 4,314 pages. In 1987, when Brenda became Publications Manager and Executive Editor, the Society published

2,567 articles for a total of 23,964 pages. However, in 1987, the Society not only published the four main journals, *AJP*, *JAP*, *JN*, and *PRV*, but it also published 6 *AJP* sectional journals (*AJP: Cell Physiology*, *AJP: Endocrinology and Metabolism*, *AJP: Gastrointestinal and Liver Physiology*, *AJP: Heart and Circulatory Physiology*, *AJP: Regulatory, Integrative and Comparative Physiology*, *AJP: Renal Fluid and Electrolyte Physiology*). In 1998, the last complete year prior to Brenda's retirement, the journal program consisted of *AJP*, *JAP*, *JN*, and *PRV*, with *AJP* consisting of 8 section-



APS Executive Director Martin Frank gives Brenda Rauner a kaleidoscope in appreciation of her work for the Society.

Publications

al journals with the addition of *AJP: Lung, Cellular and Molecular Physiology* and *AJP: Advances in Physiology Education*. Each of these journals exists in print and online formats. In addition, the Society publishes *News in Physiological Sciences* and *APSTRACTS*. In 1998, APS published 3,872 articles for a total of 34,103 pages. As we start 1999, we are preparing for the launch of a new journal, *Physiological Genomics*. Overall, Brenda's career has spanned a period in printing that has gone from hot metal type to digital composition to publication on the web.

Prior to joining APS, Brenda worked in the publications departments at both the American Speech, Language, and Hearing Association and Growth Stock Outlook. She is a native of London, England and earned a baccalaureate degree in economics from the London School of Economic and Political Science. She came to the United States in 1954 after marrying her husband, Bob, in 1951. After 48 years of mar-



riage, her children, Margaret and Allen Brodnick, Tom Rauner and Karen Aviles, Peter and Suzanne Rauner, and Cath and Steward Grubman, have provided her with six grandchildren that will no doubt keep Brenda busy during her retirement.

During the Editorial Board banquet held during Experimental Biology '99, the APS Council, Publications Committee, Editors and Editorial Board members toasted Brenda and thanked her for the gracious and professional way in which she handled her responsibilities as Executive Editor. The current



Brenda Rauner, surrounded by her children, displays her retirement plaque at her recognition ceremony.

stature of the Society's journals is a result of the many innovations introduced by Brenda and serves as a legacy that is a source of great satisfaction and pride. In appreciation, the APS provided her with a number of retirement gifts and expressed the hope that her retirement be filled with health, family, and new activities which will continue to bring her fulfillment. Brenda, all of us in the APS family wish you all the best.



Chapter News

Iowa APS Chapter Annual Meeting Report

The fourth annual meeting of the Iowa Physiological Society (IPS) was held on April 23 and 24 at Iowa State University in Ames, Iowa. The IPS meets in conjunction with the larger Iowa Academy of Science (IAS). This joint meeting is beneficial to both organizations in that it brings together more physiologists than would be possible if the meetings were held separately. Perhaps this combination of state science academy meetings with state physiological society meetings can serve as a model for other states considering the formation of a physiological society. The Chair of the Physiology Section of the IAS also serves as President of the IPS, and separate business meetings are held for both organizations at the annual meeting. This year there were a total of 20 papers presented in slide and poster formats. Fourteen of the 28 posters displayed at the IAS Meeting were contributed by the members of the IPS. A nice spectrum of physiological topics was presented, including sensory physiology, fish respiration, ion channels, shock and resuscitation techniques, vascular smooth muscle, hypertension, baroreceptor function, and renal nerve physiology. Several viewing sessions of posters were possible both days, and during the Saturday afternoon session each poster author was given a time slot to discuss their poster for the benefit the entire audience. This is an approach that has now been used twice.

This technique is very helpful in communicating the research findings as well as stimulating discussion. The traditional "luncheon buffet" on the second day of the meeting was hosted by the IPS and continues to be a popular event. It is held against the backdrop of the poster papers allowing informal discussion of the research. The luncheon was catered this year by a member of the IPS executive committee, **Richard McCabe**.

A highlight of the meeting was made possible by a Lectureship Award from the American Physiological Society which helped sponsor **Charles Tipton**, Emeritus Professor of Physiology at the University of Arizona, who gave a General Session Lecture before the entire Iowa Academy on Friday evening titled, "The Iowa Wrestling Studies: From Athens To Iowa City." His presentation centered on his pioneering studies concerning the control of body mass, fluid balance, and electrolyte balance in high school wrestlers during their training and certification for weight classification. Tipton has been active in studies of microgravity sponsored by NASA and presented the APS Keynote Lecture after the Saturday afternoon luncheon buffet on the topic, "Animal Models for Select Human Problems Created by a Microgravity Environment." Both of his presentations were very well received and the IPS is grateful to the APS for its sponsoring

assistance. IPS was pleased that Tipton attended the entire meeting and provided valuable discussion for most of the papers.

Following the Saturday morning slide presentation, the IPS business meeting was held at which time committee reports were heard, the new IPS president-elect was chosen, and the election for the treasurer position was held. The new President of the IPS is Luke H. Mortensen (Physiology/Pharmacology, University of Osteopathic Medicine, Des Moines, IA 503112). His e-mail address is lmortens@uomhs.edu. Piper Wall (Staff Scientist, Surgical Education Dept., Iowa Methodist Hospital in Des Moines, IA 50309) is the new President-elect of the IPS. Her e-mail address is pwall@dnx2.dux.com. Mark Chapleau (Internal Medicine, University of Iowa, Iowa City, IA 52242) was elected to a three-year term as Treasurer of the IPS. His e-mail is mark-chapleau@uiowa.edu. The fifth annual meeting of the IPS will take place April 21-22, 2000 at the Hotel Ft. Des Moines, Des Moines, IA.

Complete details of the fourth annual meeting of the IPS will be available at our website: <http://www.faseb.org/aps/iowa.htm>. ♦

Russell Rulon
Past President
Iowa Physiological Society
rulonrus@luther.edu



Want to start your own state APS chapter?
Check out the web site at
<http://www.faseb.org/aps/guidelin.htm>
or contact Dr. Martin Frank at 301-530-7118.



1998 APS Conference Report

The Paraventricular Nucleus of the Hypothalamus: A Crossroads of Integrative Physiology

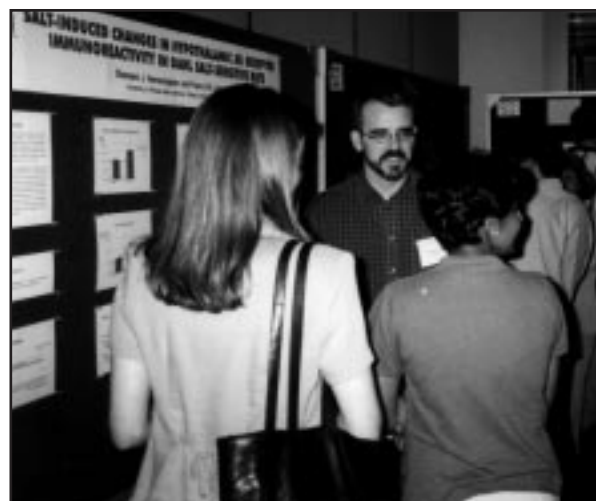
The Festival of Lights on San Antonio's Riverwalk served as the backdrop for the Society's 1998 conference on "The Paraventricular Nucleus of the Hypothalamus: A Crossroads of Integrative Physiology" organized by **Joseph R. Haywood** with the assistance of **Alan K. Johnson**, **Arthur D. Loewy**, **Leo P. Renaud**, **Catherine Rivier**, and **Anton J.W. Scheurink**. The conference featured an in-depth exchange of ideas concerning the role of the paraventricular nucleus in the integrative responses to neural, humoral, and endocrine stimuli to the brain. Divergent areas of neuroscience were brought together to understand how this area of the brain contributes to the regulation of cardiovascular, endocrine, and immune function as well as fluid and electrolyte regulation and energy balance. Work ranging from molecular regulation of peptides to whole animal physiology revealed insights into the contribution of the paraventricular nucleus to maintaining the "internal milieu" during physiological and pathophysiological states.

There was an internationally recognized and interdisciplinary group of

investigators present, and interaction was enhanced by the presence of young scientists, students, and investigators new to this burgeoning field of study of the paraventricular nucleus.

The conference attracted 166 registrants 26% of which represented young scientists, including 14% student and 11% postdoctoral registrants. Of the registrants, 19% were members, whereas 25% were not members of APS. Invited speakers and session moderators represented 29% of the registrants.

The outstanding program consisted of 6 symposia, 2 plenary lectures, and a total of 58 poster presentations. The social program included the Saturday evening Opening Reception and Tuesday evening barbecue and awards presentation. Banquet attendees danced to the music of local country/western



Poster session in San Antonio.

band Bobby Baker and the Longnecks.

Participants enjoyed the proximity of the meeting to the lovely San Antonio Riverwalk. Strolls along the river were used to continue many of the discussions initiated during the sessions. Additionally, El Mercado offered an escape for shopping while the historic missions, including the Alamo, provided opportunity for sight-seeing. Outstanding cuisine rounded out a thoroughly enjoyable experience.

The awards presentation recognized the four recipients of the Graduate Student Award for best abstract presentation. The awardees presented with a cash prize and certificate were: **Shereeni J. Veerasingham**, University of Ottawa Heart Institute, for "Salt induced changes in hypothalamic AT1 receptor immunoreactivity in DAHL salt-sensitive rats"; **Niels Vrang**, University of Copenhagen, Denmark, for "Intracerebroventricular infusion of CART peptide induces c-Fos protein in areas implicated in central control of food intake"; **Susan M. Tanimura**, University of Southern California, for "Stress-induced CRH gene transcrip-



San Antonio conference attendees take part in a line dance.

1998 APS Conference Report

Table 1. Distribution by Department of Submitted Abstracts

Department	Abstracts	
	No.	%
Physiology or Physiol/Biophysics	12	21
Pharmacology and Toxicology	11	19
Neuroscience	10	17
Surgery	4	7
Anatomy	3	5
Medicine or Internal Medicine	3	5

tion is not maintained in the PVN in the absence of corticosterone"; and **Jack D. Shepard**, University of Oklahoma Health Sciences Center, for "The amygdala is a potential site of glucocorticoid positive feedback in the hypothalamo-pituitary-adrenal axis."

Three attendees were recipients of the NIDDK Fellowship Award provided to encourage participation of under-repre-

sented minority students: **Johnalyn Lyles**, University of Maryland, Baltimore; **Jayne S. Reuben**, Florida A&M University College of Pharmacy and **Selina F. Darling-Reed**, Florida A&M University College of Pharmacy. Supported by the National Institutes of Diabetes and Digestive and Kidney Diseases, the fellowship provides reimbursement of all expenses associated with travel to and participation in the conference. Recipients are matched with an APS member attending the conference who offers guidance and makes introductions to other scientists.

In addition, the organizers developed a mentoring system for graduate students and postdoctoral fellows. Established investigators were paired

Table 2. Registration Statistics

	No.	%
APS Member	32	19
Non-member	41	25
Postdoctoral	19	11
Student	24	14
Invited Speaker	48	29
Guest	2	1
Total	166	100

with students and fellows to discuss issues concerning professional advancement. Nine students and fellows participated in an informal gathering, which featured a bag lunch on Saturday, December 5.

A total of 58 abstracts were submitted to the conference for poster presentation. Table 1 provides a distribution of abstracts based on submitting department: 28% were by female first authors, 24% were submitted by authors at institutions outside The Americas. Of the 166 registrants, 30% were female, 10% were from foreign institutions, and 2% represented scientists working in industry. Table 2 provides the breakdown of registration by type.

The Society and Organizing Committee gratefully acknowledge financial support provided through educational grants from National Institutes of Health—National Institutes of Diabetes and Digestive and Kidney Diseases, Merck Research Laboratories, Protech International Inc., and SmithKline Beecham Pharmaceuticals.



Pictured with J.R. Haywood are two of the NIDDK Fellowship award winners and three of Graduate Student Award winners.

It's not too early to start planning for
Experimental Biology 2000!
 Mark your calendar for **April 15-18, 2000**
 and we'll see you in
San Diego, CA!

Conferences

Biology of Potassium Channels: From Molecules to Disease

1999 APS CONFERENCE

September 22-25, 1999

Snowmass Resort, Snowmass Village, Colorado

ORGANIZERS:

Steven Hebert, Vanderbilt University

Gerhard Giebisch, Yale University

STEERING COMMITTEE:

Richard Aldrich, Stanford University

David Clapham, Children's Hospital/Harvard Med. School

Lily Jan, University of California, San Francisco

Olaf Pongs, Institut für Neuronale Signalverarbeitung

Frances Ashcroft, Oxford University

Fred Sigworth, Yale University

Lawrence Palmer, Cornell University

PURPOSE: This meeting on the broad topic of K channels will promote dissemination of current and evolving information/trends as well as foster potential interactions among attendees. Focus will be on gating/regulatory and structural/genetic elements of K channels. The involvement of K channels in several inherited diseases will be stressed.

WEDNESDAY, SEPTEMBER 22, 1999

State-of-the-Art Address: Structure of the Potassium Channel Pore

Speaker: Fred Sigworth, Yale Univ.

THURSDAY, SEPTEMBER 23, 1999

State-of-the-Art Address: High Conductance Ca-Activated Potassium Channels: Structure, Function and Pharmacology;

Speaker: Gregory Kaczorowski, Merck Research Laboratories

Session 1: K Channel Gating

Chairs: Clay Armstrong, Univ. of Pennsylvania,

Fred Sigworth, Yale Univ.

Speakers: Francisco Bezanilla, UCLA; Richard Aldrich,

Stanford Univ.; Colin Nichols, Washington Univ.;

David Clapham, Harvard Medical School

Session 2: The Channel Pore

Chairs: Henry Sackin, Chicago Medical School,

Gary Yellen, Harvard Univ.

Speakers: Benoit Roux, Univ. of Montreal; Hans Oberleitner,

Univ. Münster, Germany; Robert Guy, NIH

State-of-the-Art Address: ATP-Sensitive K Channels: Structure, Pharmacology and Function

Speaker: Frances Ashcroft, Oxford Univ.

FRIDAY, SEPTEMBER 24, 1999

State-of-the-Art Address: The Inward Rectifier K Channel Family

Speaker: Lily Jan, UCSF

Session 3: K Channel Associated Protein

Chairs: Rainer Greger, Univ. of Freiburg, Germany,

Lydia Bryan, Baylor Univ.

Speakers: Lydia Bryan, Baylor Univ., Min Li, Johns Hopkins

Univ., Arthur Brown, Case Western Reserve Univ.,

David Brecht, UCSF; Joseph Bryan, Baylor Univ.

Session 4: Assembly of K Channels

Chair: Lily Jan, UCSF

Speakers: James Trimmer, SUNY at Stony Brook;

Diane Papazian, UCLA; Senyon Choe, Salk Institute;

Raymon Latorre, CECS in Santiago, Chile

Session 5: Channel Regulation

Chairs: Wen-Hui Wang, Yale Univ.;

J. Peter Ruppersberg, Institute of Physiology, Tübingen, Germany

Speakers: Lawrence Palmer, Cornell Univ.; Steven Hebert,

Vanderbilt Univ.; Donald Hilgemann, Univ. of Texas, Southwestern.

SATURDAY, SEPTEMBER 25, 1999

State-of-the-Art Address: Knockout/Transgenic Models of Potassium Channel Function

Speaker: Olaf Pongs, Center for Molecular Neurobiology, Hamburg

Session 6: K Channels and Inherited Diseases

Chairs: David Clapham, Harvard Univ., Michael Bienkowski, Pharmacia and Upjohn

Speakers: Lydia Bryan, Baylor Univ.; Gerda Breitwieser,

Johns Hopkins Univ.; Michael Sanquinetti, Univ. of Utah;

Richard Lifton, Yale Univ.

Session 7: Other K Channels

Chairs: Walter Stühmer, Max-Planck Institute, Gary Desir, Yale Univ.

Speakers: Herve Sentenac, INRA Argo Montpellier, France;

Lawrence Salkoff, Washington Univ.; Michael Lazdunski,

Univ. Nice, France; John Adelman, Oregon Hlth Sci Univ.;

Steve Goldstein, Yale Univ.; Nicholas Standen,

Univ. of Leicester, UK.

DEADLINE

Advance Registration Deadline - August 2, 1999

Conferences

Determinants of Vigilance: Interaction Between the Sleep and Circadian Systems

1999 APS CONFERENCE

October 19-22, 1999

Radisson Bahia Mar Beach Resort, Ft. Lauderdale, Florida

ORGANIZER:

Allan Pack, University of Pennsylvania

STEERING COMMITTEE:

David Dinges, University of Pennsylvania

H. Craig Heller, Stanford University

Leszek Kubin, University of Pennsylvania

Adrian Morrison, University of Pennsylvania

Amita Sehgal, University of Pennsylvania

Robert Moore, University of Pittsburgh

Fred Turek, Northwestern University

Jerry Siegel, University of California, Los Angeles

PURPOSE: This meeting will explore the quantitative nature of the interaction of circadian biology and basic mechanisms of sleep and new potential areas of scientific opportunity. We will examine the neuroanatomical evidence of direct connections between neurons involved in the circadian clock and those involved in the sleep/wake cycle. There will be presentations about how the circadian system affects neuroendocrine function and how such neurohormones might affect sleep. We will address whether the interaction between the circadian and sleep system could occur at the level of regulation of gene transcription.

TUESDAY, OCTOBER 19, 1999

Session 1: Evidence for Interaction Between Sleep and Circadian Systems

Chair: Robert Moore, Univ. of Pittsburgh

Speakers: Charles Czeisler, Harvard Univ.; Irene Tobler, Univ. of Zurich; Dale Edgar, Stanford Univ.; H. Craig Heller, Stanford Univ.

Session 2: Molecular Basis of the Circadian Clock

Chair: Fred Turek, Northwestern Univ.

Speakers: Amita Sehgal, Univ. of Pennsylvania; Larry Pinto, Northwestern University; Steven Reppert, Massachusetts General Hospital; Martha Gillette, Univ. of Illinois, Urbana.

WEDNESDAY, OCTOBER 20, 1999

Session 3: Mechanisms Controlling Sleep: Networks and Systems

Chair: Adrian Morrison, Univ. of Pennsylvania

Speakers: Robert McCarley, Harvard Univ.; Ronald Szymusiak, UCLA; Jerry Siegel, UCLA

Session 4: Sleep Promoting Factors

Chair: Alexander Borbely, Univ. of Zurich

Speakers: Osamu Hayaishi, Osaka Bioscience Institute; Robert Greene, Harvard Univ.; James Krueger, Univ. of Tennessee, Memphis

Session 5: Neuroanatomical Basis of Interaction

Chair: Gene Block, Univ. of Virginia, Charlottesville

Speakers: Robert Moore, Univ. of Pittsburgh; Clifford Saper, Harvard Univ.; Gary Aston-Jones, Univ. of Pennsylvania

Session 6: Could Interaction be Neurohormonal or Neurochemical?

Chair: Irene Tobler, Univ. of Zurich

Speakers: Alexander Boberly, Univ. of Zurich; Eve vanCauter, Univ. of Chicago; Rae Silver, Columbia Univ.

THURSDAY, OCTOBER 21, 1999

Session 7: Possible Molecular Mechanisms of Interaction

Chair: Steven Reppert, Massachusetts General Hospital/Harvard Univ.

Speakers: Allan Pack, Univ. of Pennsylvania; David Weaver, Harvard

Session 8: Consequences of the Interaction Between Circadian and Sleep Systems: Behavior and Vigilance

Chair: Michael Menaker, Univ. of Virginia, Charlottesville

Speakers: David Dinges, Univ. of Pennsylvania; Gregory Belenky, Walter Reed Army Institute of Research; Mary Carskadon, Brown Univ.

Session 9: Consequences of the Interaction Between Circadian and Sleep Systems: Other Systems

Chair: Charles Czeisler, Harvard Univ.

Speakers: Virend Somers, Univ. of Iowa; Janet Mullington, Harvard Univ.; Steven Shea, Harvard Univ.

Session 10: Panel Discussion: Where Do We Go From Here?

Chair: Allan Pack, Univ. of Pennsylvania

Speakers: Gary Aston-Jones, Univ. of Pennsylvania; Gene Block, Univ. of Virginia, Charlottesville; Michael Menaker, Univ. of Virginia, Charlottesville; Jerry Siegel, UCLA; Fred Turek, Northwestern Univ.

DEADLINES

Abstract Deadline - July 16, 1999

Advance Registration Deadline - August 30, 1999

Scientists Get Tips on Meeting With Congress at EB '99 Symposium

"If we as scientists don't get involved with this [political] process, these 15% increases won't continue to happen," J.R. Haywood told 150 scientists who took part in "A Call to Activism" on April 17. This legislative advocacy training workshop was held at the Experimental Biology '99 meeting and was organized by APS and co-sponsored by the other EB participating societies (ASPET, ASIP, ASNS, AAI, AAA). A legislative advocacy toolkit with materials to assist scientists in becoming legislative advocates was developed for the program, and the materials are available on the APS web site at <http://www.faseb.org/aps/EBAdvocacyToolkit.htm>

Symposium organizer Shirley Ruhe, the former Director for Budget and Economic Policy of the House Budget Committee, set the stage by explaining that each Congress has its own political dynamic depending on how the strength of the two parties have changed; whether the president has a political agenda; and who the key players are. For advocates of biomedical research or any other cause, the lesson is clear, you have to stay on top of a changing environment in order to remain effective. Cultivating new Congressional champions is particularly important since half of the Republicans in the House have been in Congress less than four years and may not know very much about NIH. Several new NIH advocates emerged this year when the House Budget Committee was making its recommendations. On the other side of the balance sheet, however, long-time NIH champion John Porter (R-IL) must give up his chairmanship of the Labor-HHS-Education Appropriations Subcommittee next year because of a House Republican rule limiting the terms of committee chairmen.

Ruhe predicted that the most important "political game" and limiting factor in this session of Congress for biomed-

ical research would be the statutory caps or limitations on discretionary spending. "This year, the cap numbers are so low that it's impossible to move [spending] legislation," she told the audience.

Ruhe urged scientists to provide plenty of "continuing education" to Members of Congress about what NIH is and what it does. "Give them a per-



Former Representative Butler Derrick reminded scientists to make their Congressional visits more than a social call.

sonal example of what you're working on — it sticks with them," she said. She also recommended using "multi-media approaches," explaining that some people absorb information best when they read it, others by being told, others by seeing tables, pie charts, etc. Although telephone calls and emails have their role, "visits are best," she noted. "And keep up with [your] input to the legislative process," she said.

It is particularly important to know something about Members of Congress before you meet them. This includes very basic information, such as party affiliation, length of Congressional service, and membership on committees with jurisdiction over key issues. Ruhe created a "Know Your Legislator" checklist, which is available in PDF and HTML formats as part of the Legislative Advocacy Toolkit on the APS web site. Basic information can be obtained from web sites such as

www.congress.org which has an on-line Congressional directory including links to legislators' own web pages and their official biographies. Biographies are also available upon request from Members' offices.

Former Representative Butler Derrick advised scientists to remember that they are not just making a social visit. Visits to Members of Congress should be made for a specific purpose—to seek support for their cause. "Tell the Member what you want him to do," Derrick said. He also cautioned against getting into a political debate.

"Make sure it's a problem Congress can solve, not a state or local issue" he said. He also noted that it is important that the Member's designated staff person attend the meeting since he or she will be the one who must follow up on what needs to be done.

Former House Labor-HHS-Education Appropriations Subcommittee Staff Director Michael Stephens provided the staff perspective on Congressional visits. Stephens estimated that during his 21 years on Capitol Hill he had probably participated in 16,000-17,000 such visits. Most are reasonably successful, but about 5% "break out of the pack," and another 5% are "disasters." The most outstanding Congressional visits provide a "vividness" and "a real aspect of the issue that differs from organizational messages." Stephens recommended that scientists try to bring a "new viewpoint based on their own experiences."

Disasters, on the other hand, most frequently occur when visitors fail to do their homework. Stephens cited the example of a group that came to ask the Appropriations Subcommittee to provide a certain amount for a program, not realizing that the panel had in fact already agreed to provide millions more. As a result, the subcommittee reduced the amount to the group's requested level! In another instance, one

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APS President Walter Boron presents Senate Minority Leader Tom Daschle (D-SD) with an APS Centennial medallion. APS Education Committee Chair Barbara Goodman, a Daschle constituent, arranged for an APS delegation to meet with Daschle and his staff.

organization's spokesman delivered prepared testimony on behalf of a program he did not actually consider necessary and said so when asked to elaborate on the need for it. His organization's efforts were undercut because it had failed to take note that there was a discrepancy between its own position and its spokesman's views.

Stephens further advised scientists to maintain a positive and professional attitude in Congressional meetings even when describing problems. "Don't whine about how tough it is," he warned. He also cautioned against getting angry or being dismissive of junior staff members. "They are the bridge" to the Member, he explained.

One useful strategy is to ask your Member of Congress to make a request to another Member, such as a committee chair. Members are constantly "horse trading" for favors so this strategy can be very effective if the legislator is convinced that your request is important.

A summary of these and other suggestions for successful Congressional visits is available with the Legislative Advocacy Toolkit materials on the APS web site in PDF

(continued on page 136)



APS President Walter Boron and Past President L. Gabriel Navar sample the rarified air behind a news makers' podium in front of the US Capitol. Despite Executive Director Martin Frank's best efforts, no television crews covered the historic occasion.



Beaming after a successful meeting with Sen. Tom Daschle are (left to right) Past President L. Gabriel Navar, Public Affairs Committee Chair J.R. Haywood, President Walter Boron, Executive Director Martin Frank, and Education Committee Chair Barbara Goodman.

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and HTML formats. The document is called "Communicating Effectively with Congress—A Do's and Don't's Guide."

A special feature of the symposium was a skit illustrating the right and wrong ways to conduct a Congressional visit. The skit featured former Rep. Derrick in the role of the Congressman, with Sue Duckles of ASPET, James Olds of AAA, John Suttie of ASNS, and Galen Toews of AAI playing the roles of the constituents. In the first version of the skit, the hapless constituents arrived late, disorganized, and inappropriately dressed. (Duckles wore spike heels, Olds wore a polo shirt, and Toews sported a baseball cap.) They quarreled among themselves about their message

and were unprepared even to give the Congressman their business cards. In the second version, the group was on time, organized, and properly attired. Each member of the delegation explained part of what the group wanted, and they were prepared to answer the Congressman's questions. Although the first skit was more amusing, the second skit clearly represented a more

effective Congressional visit.

J.R. Haywood led a discussion in the closing section of the program about how to answer tough questions that Members of Congress might ask about NIH funding and biomedical research. These tough questions included:

- Why should Congress give NIH another 15% increase?
- What other programs should Congress cut to pay for NIH's big increase?
- What diseases should Congress spend NIH dollars on first?
- How can you justify experimenting on human embryos?
- What do scientists do to animals, and do you really have to do it?

The answers to these and other "tough questions" are also available with the Legislative Advocacy Toolkit materials on the APS web site under "How to Answer Tough Questions."

For further information contact APS Public Affairs Officer Alice Ra'anan. ♦



A good Congressional visit requires planning, organization, timeliness, and old-fashioned manners.

Call for Nominations: The 2001 Henry Pickering Bowditch Lecture

The annual Bowditch Lecture honors the first President of the American Physiological Society, Henry Pickering Bowditch.

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 42 years of age at the time of presentation. The award is for original and outstanding accomplishments in the field of physiology. The award conveys an honorarium of \$2,500 plus travel and per diem expenses to attend the spring meeting, and the recipient is invited to submit a manuscript for publication in one of the Society's journals.

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

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

Call for Nominations: The 2001 Walter B. Cannon Memorial Lecture

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

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

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

APS Tells USDA Not to Regulate Rats, Mice, and Birds

USDA should not extend Animal Welfare Act regulations to rats, mice, and birds, APS said in comments on a petition asking USDA to do so. In a January 28, 1999, *Federal Register* notice, USDA published the petition and asked the public to comment on whether it should change the AWA definition of “animal” to include rats and mice bred for laboratory research as well as birds. (Wild-caught rodents are already covered.) The petitioners subsequently filed suit in US District Court to compel USDA to change the definition.

“Physiologists recognize that humane and scientific considerations converge when it comes to laboratory animal welfare,” APS President Walter F. Boron wrote in the Society’s comment letter. However, the Society disagreed with the assertions of the petitioners that USDA was compelled by the language of the AWA to regulate rats, mice, and birds and that in failing to do so had left these animals without humane protection.

“[Rats and mice] are bred specifically for use in research, and in the overwhelming number of cases, they are kept in facilities that use the ILAR

Guide for the Care and Use of Laboratory Animals as the standard of care either because of PHS funding, AAALAC accreditation, or both,” Boron wrote. “Birds used in biomedical research are similarly provided care in accordance with the *Guide*.”

USDA regulation of rats, mice, and birds under the AWA would pose a regulatory burden by duplicating the oversight already provided by the *Guide* and imposing unnecessary paperwork requirements. To the extent that AWA requirements for housing and husbandry might differ from those of the *Guide*, it could become difficult and expensive for facilities to comply with two sets of animal care guidelines. Furthermore, USDA Animal Care Policies make significant paperwork demands in terms of identification, health, and surgical records that are not required for rodents under the *Guide*. USDA also requires reports on how many animals are used each year, which would be difficult to provide for rodents and is not how most facilities keep track of them. These paperwork requirements would not provide an improvement in animal welfare.

Another consideration is that USDA would most likely be unable to provide meaningful oversight of the species it already regulates if rats, mice, and birds were added to its portfolio. USDA estimates that this change might double the number of regulated facilities because of the many commercial bird facilities that are not currently regulated. “The APHIS Animal Care staff lacks sufficient numbers of veterinary medical officers to conduct the additional inspections,” Boron wrote, “much less simultaneously to maintain its current AWA enforcement efforts.”

USDA regulation of rats, mice, and birds “is unnecessary to provide humane protection because most of these animals are already protected by the *Guide*,” Boron wrote. “Furthermore, the inclusion of rats, mice, and birds would undermine the effectiveness of other AWA activities, disrupt research with redundant regulations, and increase the cost of conducting research using these species.”

The full text of Boron’s letter is posted on the Public Affairs section of the APS web site at www.faseb.org/aps/rats_commentletter.htm. ♦

Supreme Court Will Not Review Primate Enrichment Case

The Supreme Court on April 19 declined to review a lower court decision that granted a New York man the right to challenge USDA regulations providing for the psychological enrichment of non-human primates.

The National Association for Biomedical Research asked the Supreme Court to review the case *Animal Legal Defense Fund v. Glickman and NABR*. Although the US Solicitor General and the Justice Department agreed that the appellate court ruling had been in error, the department decided not to request a review because a lower court had not

yet ruled on the merits of the case.

NABR President Frankie Trull pronounced herself “disappointed” with the high court’s action but noted that the Supreme Court in fact “reviews very few cases.”

The New York man, Marc Jurnove, is the only one from a group of four individual plaintiffs plus the ALDF itself who was seen as meeting the legal tests for standing to sue the government. His case is based on a claim that he suffered “aesthetic injury” after seeing primates in a roadside zoo kept in conditions he considered inhumane. Jurnove argued that it was unlawful to let zoos and

research facilities establish their own primate enrichment plans.

The case had worked its way up through the court system on the question of whether the plaintiffs had the right to challenge the USDA’s primate enrichment regulations. These rules apply to research institutions as well as to zoos and exhibitions. The Supreme Court’s refusal to review the issue of standing returns the case to the DC Circuit Court of Appeals, where arguments will be heard on the merits of the case. ♦

NAS Panel Says Do Not Ban Production of Monoclonal Antibodies

The production of monoclonal antibodies (mAb) should not be banned, according to the report of a National Academy of Sciences (NAS) panel, but the use of in vitro alternatives should be encouraged.

The NIH was petitioned in 1997 and again in 1998 by the American Anti-Vivisection Society (AAVS) to ban the ascites method of producing mAb, in favor of non-animal alternatives. NIH asked the National Research Council (NRC) to study whether the use of animals in the production of mAb should be prohibited. The NRC formed the Committee on Methods of Producing Monoclonal Antibodies, which was comprised of 11 experts with backgrounds in biomedical research, laboratory animal medicine, pain research, animal welfare, and patient advocacy.

The committee was asked to consider two sets of issues: whether it is scientifically necessary to produce mAb by the mouse method, and, if so, to recommend ways to minimize any pain or distress that might be associated with the method; whether there are federal regulations required for the mouse method and to summarize the current stage of development of tissue-culture methods.

The committee provided four recommendations.

1) Tissue culture methods for the production of monoclonal antibodies should be adopted as the routine method unless there is a clear reason why they cannot be used or why their use would represent an unreasonable barrier to obtaining the product at a cost consistent with the realities of funding of biomedical research programs.

2) The mouse ascites method of producing monoclonal antibodies should not be banned, because there is and will continue to be scientific necessity for this method.

3) When the mouse ascites method for producing mAb is used, every reasonable effort should be made to minimize pain or distress. This includes frequent observation, limiting the numbers of fluid taps, and prompt euthanasia if signs of distress appear.

4) Commercial production of mAb through the mouse ascites method should continue, but industry should also continue to move toward the use of in vitro methods.

The panel's report supports NIH's response to the initial AAVS petition. ♦

Opposition to Singer Appointment Continues

Republican presidential hopeful Steve Forbes has joined the opposition to the appointment of Australian philosopher Peter Singer as a tenured professor at Princeton University.

According to *The Washington Times*, Forbes, a member of Princeton's Board of Trustees, will ask Princeton President Harold T. Shapiro to rescind Singer's appointment. Forbes, who is a Princeton alumni, has made substantial contributions to Princeton, and one of his daughters is currently a student there.

Singer is due to arrive at Princeton July 1 and to begin teaching in the fall. A proponent of the utilitarian view of ethics, Singer is best known in the research community for his 1975 book *Animal Liberation*, which is considered

one of the founding documents of the modern animal rights movement. Singer has argued that in most instances, humans do not have the ethical right to use animals if in so doing the animals are harmed. Singer's rationale is that he counts many animals as "persons" for the purpose of making the utilitarian ethical calculation about whether benefits outweigh costs.

At the same time that he elevates many animals to the status of persons, Singer also categorizes some impaired humans as non-persons, which has led to an outcry against his appointment among activists for the disabled. "Killing a defective infant is not morally equivalent to killing a person," Singer wrote in *Practical Ethics*. He has suggested that parents should be allowed to

kill severely disabled infants up to 28 days after birth since the infants do not yet understand what it means to be alive and their impairments may prove to be a burden to themselves and society. This controversial position has managed to enrage both supporters and opponents of abortion.

Princeton graduate student Christopher Benek, who is the president of Princeton Students Against Infanticide, is asking prominent alumni and trustees to bring pressure to bear against Singer's appointment. Benek told *The Washington Times* that in addition to Forbes, he has approached trustee and US Sen. Bill Frist (R-TN) and Democratic presidential Bill Bradley, asking them to speak out against Singer's appointment. ♦

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Representatives Try to Halt FOIA Law

Intense lobbying efforts surrounded an effort to delay by one year the implementation of a law requiring that data from federally funded research be disclosed under the Freedom of Information Act (FOIA).

The amendment was expected to be offered by Reps. James Walsh (R-NY) and David Price (R-NC) at a markup of the FY 2000 Treasury-Postal appropriations bill that was originally scheduled for mark-up on May 20. Funding legislation such as the Treasury-Postal bill is often used as a vehicle for legislation on other issues. In addition to delaying by one year the expansion of FOIA to research data, the Walsh-Price amendment would also require the Office of Management and Budget (OMB) to commission a study by the National Academy of Public Administration on how best to accomplish the objective of data sharing that underlies the FOIA requirement.

At the last minute, however, the Treasury-Postal markup was postponed until the week of May 24 or later for reasons unrelated to the Walsh-Price proposal. Reps. Walsh and Price indicated that they still intended to offer their amendment, which was supported by the university and academic communities and the biotechnology and pharmaceutical industries. APS signed a letter supporting the plan and sent a NetAlert message urging scientists to ask members of the House Appropriations Committee to support it.

Top officials from 34 biotechnology and pharmaceutical companies sent a letter of support that stated in part that disclosure of research under FOIA "could result in the dissemination and

publication of early research observations, raw clinical trial data, and other proprietary information arising from collaborative research agreements between the companies we represent and NIH-supported laboratories."

Other organizations, such as the US Chamber of Commerce and the American Mining Association, lobbied against the Walsh-Price amendment. The delay in the mark-up was seen as likely to favor these opponents.

In preparation for the Appropriations Committee mark-up, Ranking Democrat David Obey (D-WI) asked NIH Director Harold Varmus for his views on the FOIA issue. "After review of the proposed rule as limited to published data used in Federal regulations or policy, we concluded that the FOIA is fundamentally unsuitable as a vehicle for providing access to scientific research data," Varmus replied in a letter. Varmus cited a number of problems associated with the proposal that are discussed in detail on the NIH web site at www.nih.gov/grants/policy/a110/nih-cmts.htm.

Varmus noted that NIH is already working on appropriate ways for scientists in various disciplines to obtain access to their colleagues' research data. "Because these strategies have been carefully constructed to meet the specific demands of the science involved, they do not cause undue administrative burden," Varmus noted. "The application of the FOIA to data produced under grants, however, would place significant administrative burdens on us and our grantees," he added.

The law that the Walsh-Price amendment sought to delay had been approved last fall as part of omnibus

funding legislation. Sen. Richard Shelby (R-AL) inserted the FOIA data disclosure provision in the Treasury-Postal section of that bill because of an earlier dispute over access to the data from a Harvard study that was the basis for an EPA air pollution rule. Since information about the Shelby provision became known, it has been a source of on-going concern to the academic community.

In February, the OMB took the first step toward implementing the law by publishing a Notice of Proposed Rulemaking. The agency proposed to amend its Circular A-110 to provide for FOIA disclosure of published data from federally-funded research used to make federal rules and policies. Although the wording limited somewhat the scope of the FOIA provision, problems remained because of uncertainty over interpretation of certain terms and concerns that FOIA requests might still be used to force premature or inappropriate disclosures of information or to harass researchers. The APS submitted comments opposing the use of FOIA to promote data sharing, which are posted on the APS web site at <http://www.faseb.org/aps/foia.htm>.

Although the academic community opposed the FOIA proposal, a large volume of comments were submitted in support of the proposal. Many of these comments arrived at the end of the comment period and were the electronic equivalent of post cards that were generated by campaigns at the websites of the US Chamber of Commerce, National Rifle Association, and Phyllis Schlafly's Eagle Forum. ♦

Are you as informed as you should be on APS Public Affairs issues?

If not, have you signed up for NetAlert?

For more information, call the APS office at 301-530-7105.

Stay informed!

House Panel Needs More Funds for NIH

“Unacceptable” cuts in health and education programs will result if Congress proceeds with the funding available under the current budget caps, a wide range of health and education organizations told Congress.

Two letters, one to Members of the House of Representatives and one to Senators, were signed by organizations associated with the Coalition for Health Funding, the Committee for Education Funding, and the Ad Hoc Group for Medical Research Funding. APS signed the letters, which protested the low funding allocation provided to the Labor-HHS-Education Appropriations Subcommittee.

The inadequate funding levels came about because the budget resolution Congress approved for FY 2000 conforms to the discretionary spending caps that were enacted in the Balanced Budget Act of 1997. Despite the fact that last year Congress passed funding legislation that exceeded the discretionary caps by almost \$30 billion, both President Clinton and the Congress remain publicly committed to maintaining FY 2000 spending within the caps until the long-term solvency of social security can be addressed.

“The amount provided to the Subcommittee is nearly \$11 billion lower in Budget Authority than a freeze in funding levels from FY 1999 and almost \$14 billion lower than the President’s request for programs under its jurisdiction,” the protest letters stated. “If this allocation is applied across-the-board, all programs under the Subcommittee’s jurisdiction would receive a 12.6 percent cut in funding from FY 1999 levels.”

In fact, biomedical research advocates including the APS are recom-

mending that NIH be provided with a 15% increase. However, it has become a source of some controversy in recent years that NIH’s generous increases have at times seemed to come at the expense of other health and education programs funded through the same appropriations legislation. The joint letter on health and education funding strongly urged Congress “to take action to raise the caps on domestic discretionary spending to accommodate compelling national needs in the areas of education and health.”

Meanwhile, the House and Senate Labor-HHS-Education Appropriations Subcommittee Chairmen also objected to the amount of money made available to fund their programs under FY 2000 budget resolution.

“I can’t do anything” with this allocation, House Subcommittee Chairman John Porter (R-IL) said on May 19 when the House Appropriations Committee ratified a division of the spending authority available under the

budget resolution. Republican Congressional leaders will “have to come to grips” with the need to find more funds for discretionary spending. If not, “I think we’re headed for another debacle,” Porter said.

The Senate Appropriations Committee has not yet drawn up its version of the allocations, which were expected to differ somewhat from the House allocations. The Senate allocation was expected to provide a few billion dollars more for Labor-HHS, but this would still be as much as \$8 billion less than a freeze at the FY 1999 level. Subcommittee Chairman Arlen Specter (R-PA) has already made public statements declaring that such an allocation would be unworkable.

Because of the problems posed by staying within the budget caps and an unwillingness thus far to do away with them, long delays in action are predicted for the legislation that provide funding for NIH and for other agencies that fund biomedical research. ♦

APS Asks Congress to Continue NIH Doubling Path

“We believe that Congress is on solid ground making investment in biomedical research a top priority,” APS told Congress in testimony on FY 2000 funding for the NIH. In a written statement, the APS thanked the House Appropriations Subcommittee on Labor-HHS-Education for providing \$15.6 billion for NIH in FY 1999 and expressed support for “the ongoing effort to double the NIH budget over five years.”

“We believe that important scientific opportunities are waiting, and NIH should be given the means to pursue them as rapidly as possible,” the APS

statement said.

Physiological genomics was cited as one example of such opportunities. “Discovering the impact of genes upon function will enable us to produce medically useful knowledge,” the statement noted. Once genes have been sequenced and the proteins they produce have been identified, “we will need to study how those proteins operate in a dynamic organism,” the statement said.

The complete text of the statement is posted on the APS web site at <http://www.faseb.org/aps/nihfunds.htm>.

Sidney H. Golub Chosen as FASEB's New Executive Director

On Tuesday, May 11, the Board of Directors of the Federation of American Societies for Experimental Biology (FASEB) unanimously approved the appointment of Sidney H. Golub, PhD, as the next FASEB Executive Director. Golub is a Professor of Microbiology and Molecular Genetics at the University of California, Irvine (UCI). He served as the Executive Vice Chancellor of UCI from 1994 through 1998. Prior to that, he was Interim Dean of the UCLA School of Medicine and Provost for Medical Sciences at UCLA. In these positions, he developed experience addressing the concerns of diverse academic constituencies that will be valuable in his work with FASEB. Commenting on his new appointment, Golub stated, "we live in an era of an accelerating pace of important biomedical discoveries; future historians are likely to call this time the era of biology. I believe that it is important for the American people to recognize the importance and the beneficial impact of biological research in their lives and their futures. I am excited about working with the scientific societies and the staff of FASEB in order to serve the needs of the investigators and to articulate our message to the public."

"It was Sidney Golub's exemplary record of skilled management in the field of biomedical research, together with his distinguished career as a scientific investigator, that impressed the

Search Committee during the selection process," commented FASEB's President-Elect David G. Kaufman. FASEB Board Member and University of California, Irvine colleague, Sue



Sidney Golub

Piper Duckles stated that Golub "has the scientific experience and administrative abilities to effectively manage a large and complex organization like FASEB. In my interactions with him, I have been impressed with his commitment, depth of knowledge, and administrative ability including a capacity to build consensus among people with very disparate views."

Golub, a member of the American Association of Immunologists since 1977, has had a distinguished research career focusing on the interactions of

the human immune system with malignant cells. As Executive Vice Chancellor of the University of California, Irvine, he served as chief academic and budgetary officer for a campus of the University of California system with 18,000 students, including a medical school and extensive research activities. In that capacity, Golub worked with faculty, local private enterprise, philanthropic donors, and government agencies to develop the UCI research program. Golub will replace Michael Jackson, PhD, who has served as FASEB's Executive Director since September of 1990. Before joining the Federation, Jackson was Dean for Research and Professor of Physiology at The George Washington University Medical Center. He became Executive Director during a crucial period of reorganization for the Federation, and guided FASEB through a period of dramatic change and growth. During Jackson's tenure at FASEB, the Federation revamped its financial structure, its major mission, and its governance structure. As a result of its success in these efforts, the organization grew from 7 to 19 scientific societies. Jackson was honored by the members of the FASEB Board, Society Executives, and Senior FASEB Staff at a luncheon on May 11. He was praised for his successful leadership and for his highly analytic approach to association management. ♦

Four APS Members Elected to NAS

The National Academy of Sciences (NAS) has recently elected 60 new members and 15 foreign associates from ten countries in recognition of their distinguished and continuing achievements in original research. Among the new NAS members are four American Physiological Society members.

Michael J. Berridge is the Deputy Chief Scientific Officer at the Laboratory of Molecular Signalling at the Babraham Institute, Cambridge, UK.

Louis J. Ignarro is a professor of pharmacology in the Department of Molecular and Medical Pharmacology in the School of Medicine at the

University of California, Los Angeles.

Ramon Latorre is the Executive Director of the Centro de Estudios Científicos de Santiago, Santiago, Chile.

Michael M. Merzenich is a Francis A. Sooy Professor of Otolaryngology, School of Medicine, University of California, San Francisco. ♦

People & Places

Farrell Appointed Director of the Noll Physiological Research Center

Peter A. Farrell, Professor of Physiology, has been appointed as the Director of the Noll Physiological Research Center (NPRC) at the Pennsylvania State University. The NPRC has a long and distinguished history in conducting research in

basic, applied, and clinical physiology. Other APS members in the NPRC include **Larry Kenney**, **Joe Cannon**, **John Kirwan**, **Jim Pawelczyk**, **Nancy Williams**, and **Lars Larsson**. ❖

Hawkins Appointed President of the Finch University of Health Sciences/The Chicago Medical School

Richard A. Hawkins has recently been appointed President of Finch University of Health Sciences/The Chicago Medical School.

Hawkins began his academic career at San Diego State University where, in 1963, he earned a degree in Life Sciences, magna cum laude. After brief assignments on the faculty at San Diego State and as a Research Assistant at Scripps Metabolic Clinic with A. Baird Hastings, he entered Harvard University in 1964 and received a PhD in physiology from there in 1969.

From Harvard, Hawkins became a Research Fellow at Oxford University with Nobelist Sir Hans Krebs. After Oxford, he held various research positions at the National Institute for Mental Health and from 1974 until 1976 he served as Chief of the Physical Sciences Branch of the Food and Drug Administration of the US Department of Health Education and Welfare.

This was followed by faculty appointments at New York

University as Associate Professor of Experimental Neurosurgery and Physiology (1976-1977) and at Pennsylvania State University (1977-1988) where he was professor of Anesthesiology and Physiology and Chief of the Division of Anesthesiology and Metabolic Research.

In 1988, Hawkins came to Finch University, serving as Professor and Chairman of the Department of Physiology and Biophysics until assuming the position of Executive Vice President for Academic Affairs in June 1993. In December 1998, he was named Provost of the University.

Throughout his academic career, Hawkins has maintained significant original research on the brain—supported by grants from the NIH and other agencies. He has published a considerable number of original scientific articles, and has achieved international recognition for his discoveries and development of important new knowledge that he has shared freely with the scientific communities here and abroad. ❖

APS Sustaining Associate Members

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



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G. D. Searle and Company

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People & Places

Bruce A. Benjamin has affiliated with the Department of Pharmacology, Oklahoma State University College of Osteopathic Medicine, Tulsa, OK. Previously, Benjamin was with the Department of Cell Biology, Duke University Medical Center, Durham, NC.

Inma Castilla-Cortazar has joined the Department of Physiology, University of Malaga Faculty of Medicine, Malaga, Spain. Formerly, Castilla-Cortazar was with the Department of Human Physiology, University of Navarra, Pamplona, Spain.

Joining the Medical House Staff, at the University of Pennsylvania, Philadelphia, PA, **Deepak Kumar Chugh** has left Harbor House Staff of Harbor Hospital Center, Baltimore, MD.

Marilyn J. Cipolla, formerly affiliated with the Division of Vascular Surgery, Oregon Health Science University, Portland, OR, has joined the Department of Obstetrics-Gynecology, University of Vermont, Burlington, VT.

Having joined the Department of Immunology, Boston University School of Medicine, Boston, MA, as a Postdoctoral Fellow, **Jane M. Daun** has left the Department of Physiology, Pennsylvania State University, University Park, PA.

William R. Driedzic has joined the Ocean Sciences Centre, Memorial University of Newfoundland, St. Johns, Newfoundland, Canada. Prior to his new appointment, Driedzic was affiliated with the Department of Biology, Mount Allison University of Sackville, New Brunswick, Canada.

Recently, **Janet Fawcett** accepted a position with the Section of Metabolism and Endocrinology, Carl T. Hayden VA Medical Center, Phoenix, AZ. Fawcett was formerly with the VA Medical Center, Omaha, NE.

Larry P. Feigen has accepted the position of President, Foreign Consulting Services Inc., Wauconda, IL. Prior to his new position, Feigen was Senior Fellow, GD Searle & Company, Research and Development, Skokie, IL.

Currently, **Richard E. Fish** is the Director of University Animal Resources, North Carolina State University, Department of Laboratory Animal Resources, Raleigh, NC. Prior to his new assignment, Fish was with the Department of Laboratory Animal Medicine, University of Missouri, Columbia, MO.

Nicholas A. Flavahan recently moved to the Heart & Lung Institute, Medical Research Facility, Ohio State University, Columbus, OH. Prior to his new assignment, Flavahan was with the Department of Medicine, Johns Hopkins University, Baltimore, MD.

Having joined the Department of Medicine, University of Maryland School of Medicine, Baltimore, MD, **William L. Henrich** has left the Department of Medicine, Medical College of Ohio, Toledo, OH.

Leaving the Cardiovascular Division, University of Minnesota, Minneapolis, MN, **David C. Homans** recently joined the Cardiovascular Department, Park Nicollet Clinic, Health System Minnesota, St. Louis Park, MN.

Brian E. Hunt has affiliated recently with the Laboratory for Cardiovascular Research, Department of Aging, Harvard Medical School, Boston, MA. Hunt was originally with the Department of Kinesiology, University of Colorado, Boulder, CO.

Christopher G. Kevil, has joined the Department of Comparative Medicine, University of Alabama, Birmingham, AL. Kevil has left the Department of Molecular and Cellular Physiology, Louisiana State University Medical College, Shreveport, LA.

Having moved from the Department of Pharmacology, Columbia University, New York, NY, **Kevin F. Kwaku** has now joined the Massachusetts General Hospital, Boston, MA, as a Medical Resident.

Rodger D. Loutzenhiser recently moved from the VA Hospital, Department of Nephrology, Miami, FL, to the Department of Pharmacology & Therapeutics, University of Calgary, Calgary, Canada.

Kristopher G. Maier has affiliated with the Department of Physiology, Medical College of Wisconsin, Milwaukee, WI. Maier was formerly with the Department of Physiology, Health Science Center, University of Louisville, Louisville, KY.

Associating with the Department of Health & Kinesiology, Sam Houston State University, Huntsville, TX, **Judy Marie Muller-Delp** has moved from the Department of Veterinary Biomedical Science at the Dalton Research Center, Columbia, MO.

Kei Nagashima is currently a Postdoctoral Fellow with the Department of Physiology, Osaka University Faculty of Medicine, School of Allied Health Sciences, Osaka, Japan. Nagashima was previously a Postdoctoral Clinical Fellow in the Department of Cardiothoracic Surgery, Royal North Shore Hospital, New South Wales, Australia.

Having left the Department of Neurosurgery at Yale School of Medicine, New Haven, CT, **Edward R. O'Connor** is now with the Department of Health Sciences, Quinnipiac College, Hamden, CT.

Shuichi Okada has affiliated with the First Department of Internal Medicine, Gunma University School of Medicine, Maebashi Gunma, Japan. Okada was previously with the Department of Physiology/Biophysics, University of Iowa College of Medicine, Iowa City, IA.

People & Places

Roberto Quintana has joined the Human Performance Laboratory as Assistant Professor of Exercise Physiology, California State University, Sacramento, CA. Previously, Quintana was associated with the University of New Mexico Center for Exercise, Albuquerque, NM.

Formerly a Postdoctoral Fellow in the Department of Physiology, Medical College of Wisconsin, Milwaukee, WI, **Julie A. Rapps** has recently moved to the Department of Physiology, Carroll College, Waukesha, WI.

Daniel A. Shelly has joined the Department of Cell & Molecular Physiology, University of Cincinnati College of Medicine, Cincinnati, OH. Prior to moving to Cincinnati, Shelly was associated with the Department of Biology, Florida State University, Tallahassee, FL.

Erik Pierre Sillardorff is now with the Department of Biology, Towson University, Towson, MD. Previously, Sillardorff was with the Department of Medicine-Nephrology, University of Maryland Hospital, Baltimore, MD.

Haiyan Tong has moved from the Department of Physiology, University of Florida, Gainesville, FL. Tong is now at the Laboratory of Molecular Carcinogenesis, National Institute of Environmental Health Sciences, Triangle Park, NC. ❖

Deadlines! Deadlines!

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

Award

Next Deadline

William T. Porter Fellowship Award	June 15
NIDDK Minority Travel Fellowships for APS Conference	July 16
Research Career Enhancement Awards	August 15
Teaching Career Enhancement Awards	October 15
John F. Perkins, Jr., Memorial Fellowships	November 15
Procter & Gamble Professional Opportunity Awards	November 15
Caroline tum Suden/Francis A. Hellebrandt Professional Opportunity Awards	November 16
Liaison With Industry Award for Novel Disease Models	November 16
NIDDK Travel Fellowships for Minority Physiologists for EB Meeting	November 23
Shih-Chun Wang Young Investigator Award	December 1
Arthur C. Guyton Awards in Integrative Physiology	December 1
Orr E. Reynolds History Award	December 1
Giles F. Filley Memorial Awards for Excellence in Respiratory Physiology and Medicine	December 1
William T. Porter Fellowship Awards	January 15
APS Postdoctoral Fellowship in Physiological Genomics	January 15
AAAS Mass Media Science and Engineering Fellowship	January 15
Research Career Enhancement Awards	February 15
Teaching Career Enhancement Awards	April 15
John F. Perkins, Jr., Memorial Fellowships	May 15

News From Senior Physiologists

Letters to Arthur Vander

Arnold Schwartz writes: "Thank you very kindly for your letter of March 4, 1999. This is one of a few 'birthday cards' I have received. I am very pleased you have recognized that I have, happily enough, completed seven decades of life on this planet. Let me respond to your queries.

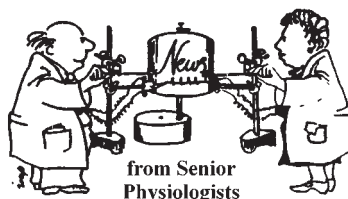
"1) I am Professor and Director of the Institute of Molecular Pharmacology and Biophysics at the University of Cincinnati Medical Center, and I am very much continuing with basic research.

"2) My research activities are supported by my Program Project Grant, now in its 21st year. This grant received a very high priority score and is likely to be funded for the next five years, i.e., from July 1999 through June 2004. In addition, I am the Principal Investigator of a National Heart, Lung, and Blood Institute Training Grant, currently in its 22nd year, and was recently renewed for five years. It will go to 2003. I have just submitted my competitive renewal for my R01, which during the past ten years was a MERIT Award, and I am hoping for good results on this.

"3) I direct the activities of three Postdoctoral Fellows and five graduate students. I was Chair of Pharmacology until 1994, when I became Director of this new Institute, and I am very happy in our activities.

"4) You ask if I have any words of wisdom to pass onto my younger colleagues. I am not wise enough to know what to say except as a generalization, if one remains active and the word retirement is simply not a part of one's vocabulary, somehow I believe this is a distinct health advantage. In any case, I am happy and I am active.

"5) I am simply not 'age-oriented' and I guess I don't respond too well to the myriad of letters that come through my mailbox describing this and that retirement plan and cemetery plans and plots and so on. It appears that our society is so age-oriented that it simply will



not permit the passing of the 70th birthday to go without these types of exhortations. I really don't think that it is appropriate for arrangements for the deposition of correspondence, etc., to be put into some kind of archival vault. I would like to think that at least some of my publications are meaningful and they, of course, are archival.

"You can certainly excerpt some of my comments to be placed in *The Physiologist* but frankly speaking, my preference is that my web site for my Institute, http://med.uc.edu/cardio_bio/impb.htm, and for my Training Grant, http://www.med.uc.edu/cardio_bio/ be accessed. Also, I would like a statement to be placed in there to the effect that we are operating at full blast, conducting a myriad of experiments on transgenic mice with ion channel engineering changes. These animals develop very interesting and human-like cardiomyopathies. My comment goes out to the APS and to young colleagues who may be interested in these animals to come work with us here or to at least correspond or contact me at my email address, schwara@email.uc.edu.

"Thank you very much for your kind letter. I hope I have not been too acerbic or in any way 'rude,' but I do feel strongly about continuing one's life in a way that makes one happy."

Paul R. Schloerb writes: "Your letter of March 4th arrived as an alarm clock ringing! Thank you. I hadn't thought about being a septuagenarian and now will be graduating to the ranks of octogenarianism!

"During the past 10 years I have returned to Kansas after a 9-year 'pseudo-sabbatical' at the University of Rochester/Strong Memorial Hospital. While there I was in charge of the surgical ICU and Burn Unit, I was able to

continue some research activity on my NIH grant and obtained another for study of nutrition in spinal cord injury. Surgical practice included placement of nearly all Hickman and Broviac indwelling central venous catheters.

"But Louis and I got homesick for our many friends in Kansas. With my new NIH grant and equipment in tow, we returned to the University of Kansas Medical Center in 1988. It has been a busy decade. In 1992, after 36 years of continuous R01 support, I did not apply for renewal of the NIH grant. I'm sure that young people can use grant funds more effectively than I. Clinical research involving nutritional support of patients undergoing bone marrow transplants has given me enough to do, with the use of enteral and parenteral glutamine as part of a randomized, blinded study protocol. Two publications have resulted on this topic, in addition to a few more. As Director of our Nutritional Support Service, I make daily rounds on all patients in the medical surgical intensive care units receiving parenteral or enteral nutrition, and teach medical students and residents (and learn from them!).

"Our recent survey on US academic medical centers (*Arch. Surg.*, 133:7-12, 1998) suggested that one-fourth and as many as one-half of these teaching hospitals were using total parenteral nutrition (TPN) formulas which contained excessive amounts of glucose, with the probability of RQ>1.0 and perhaps other metabolic complications. To correct this problem, and not to be humbled by my bright cybertechnology-oriented grandchildren, I have developed a computer program which defines appropriate TPN (circa 1999). It may be accessed at <http://epen.kumc.edu>.

"Although no longer operating, days are full and I am having a great time in academia, without much salary, but without all the worries and problems of managed care, etc. As you have probably deduced by now, I don't have much more important things to do than write letters of reminiscence!"

News From Senior Physiologists

Letters to Ken Zierler

John A. Waldhausen writes: "Thank you for your letter of February 4th regarding my upcoming 70th birthday. I am still active, but in different roles. As founding Chairman of the Department of Surgery here at Hershey, I served for 25 years. I retired from that position in 1994 to become Director of University Physicians and Associate Dean of the College of Medicine. It became my responsibility to develop an integrated clinical practice by the faculty. Shortly thereafter, I was named Editor of *The Journal of Thoracic and Cardiovascular Surgery*, a position that I still hold. I officially retired from the University (that means they don't pay me) in 1996. But the University still provides an office for me since that is where the editorial office of the Journal is. Committee activities in the College of Medicine take some of my time and, recently, I have accepted the position of a Campaign Chair for a university-wide fund drive. My responsibility will be specifically for the College of Medicine. On the outside, I participate with the NIH in two ongoing studies: the BARI study (a multi-center national randomized trial of coronary angioplasty versus coronary bypass surgery) which is in its final stages and where I serve on the Data and Safety Monitoring Committee; the NETT study, which is a multi-center national prospective randomized trial comparing medical therapy to lung volume reduction surgery and medical therapy for emphysema and where I chair the Data and Safety Monitoring Committee. On December 31, 1999 my five-year term as Editor of *The Journal of Thoracic and Cardiovascular Surgery* will end, and I have asked not to be considered for a second five-year term. The Editor of this journal, which represents a very active clinical field, should be a more involved person.

"From time to time I see Howard Morgan (the former and founding chairman of physiology at Penn State) and

Bob Forster from the University of Pennsylvania. I am now looking forward to doing some writing and spending more time in my summer home in New Hampshire."

Richard P. Spencer writes: "Thanks for the thoughtful note of March 5th.

"I continue to be active at the University of Connecticut Health Center, in the Nuclear Medicine Division. In 1998 there were 25 publications, with an ongoing stream of ideas and manuscripts. Teaching of medical students and resident physicians is still a source of fulfillment, while patient responsibilities have been reduced. Thus far, the biological age has not caught up with the chronological age (70), but the two are rapidly converging."

Letter to William Stekiel

Stefan Niewiarowski writes: "I received your standard letter of December 3 addressed to all physiologists past 70. I am still working at Temple as a full-tenured Professor and I do not intend to retire during the next few years contingent upon my good health and intellectual capability.

"There are following reasons that I have postponed my retirement. First, there is no mandatory retirement for tenured university professors. Second, I am still intellectually and emotionally capable to run my lab and to get some funds for my research. Third, I immigrated to the United States from Poland at the age of forty and I am extremely grateful to this country for the opportunity to carry out my research in a very conducive environment. I am also grateful to the United States Congress for passing the law which permits senior scientists to work. If I lived in Europe, I would have to retire from research at the age of 70. For many years, I worked on the physiology of blood platelets and coagulation, and over the last 10 years I have been involved in exciting research on viper venom proteins modulating cell adhesion. I still would like to solve

a few experimental problems before the end of my professional life.

"As a teenager I wanted to become a physician scientist or a biologist. I survived the Nazi regime and later on I had to live in a restrictive communist society. Perhaps, the current opportunities are of a greater value for me than for American-born colleagues. Certainly I could apply for the status of Emeritus Professor, but it is my feeling that retired professors have different status in our scientific community and less opportunity to raise funds for experimental research.

"I also feel that I am still needed by graduate students and younger colleagues. There is no doubt that the students or fellows may benefit a lot by interacting with the younger professors who have a lot of energy and can work longer hours than the senior professors. However, the interaction of students with older professors may have some other advantages. At the age of 70, facing limits of my life, I think more about the future of my younger colleagues and students than about myself. The accomplishments of my students and fellows become more rewarding for me than my own accomplishments in research. In brief, this is how we can pass our experience to the members of the next generation and attenuate stress of building their careers."

Letter to Eugene Renkin

Emilio Agostoni writes: "Many thanks for your kind letter for my 70th birthday. Happily, I am still doing research and teaching; moreover, being still chairman of the Institute, I am pretty busy.

"The study of the mechanical coupling between lung and chest wall led me, through various steps, to investigate the diffusional permeability of the mesothelium and of the connective tissue. For this purpose we used the retrosternal part of the parietal pericardium which can be obtained with less damage than the pleura."

Positions Available

Postdoctoral Research Position in New Zealand: A postdoctoral research fellowship is immediately available in the Department of Physiology at the University of Auckland, Auckland, New Zealand. The project, entitled "Application of Two-Photon and Confocal Microscopy to the Study of the Functional Properties of the Cataractous Lens," will make use of advanced imaging approaches to gain novel insights into the genesis of diabetic lens cataract. The successful applicant will work in an exciting environment and apply state-of-the-art two-photon/confocal microscopy to study the mechanisms involved in diabetic lens cataract. In particular, the applicant will utilize two-photon flash photolysis to release caged compounds spatially localized in specific regions of the lens. Thus, the applicant has the opportunity to learn new and potentially exciting techniques that can currently only be performed in a few laboratories. The ideal applicant will have a strong background in fluorescence microscopy and some experience using ion imaging techniques and image analysis. An understanding of the structure and function of the lens and/or gap junction channels would be an advantage but is not essential. Experience in biomedical experimentation and a general "hands on" attitude will be a definite plus. The fellowship has been awarded to two groups of researchers in the department and is designed to initiate an ongoing research collaboration. The Molecular Vision Research Group, headed by Paul Donaldson, has the long-term goal to develop new therapies that can delay or prevent the onset of lens cataract in diabetics. The group concentrates on lens ion channels and transporters as potential targets for the development of novel therapies. Mark Cannell and Christian Soeller are members of the Two-Photon/Confocal Microscopy Group in the department. The recently created group is headed by Cannell, who is internationally recognized for his pioneering work using confocal microscopy that led to the discovery of calcium sparks. Soeller has extensive experience with the two-photon microscope and is an expert in mathematical modeling. The Fellowship Award is for a period of 2 years, and the appointment will be made at the bottom of the Lecturer scale (LG1 NZ\$45,000). Travel assistance for actual airfares of up to \$4,000 will be provided for the successful applicant. Expression of interest and requests for more information should be directed to before the 1st of May 1999 to Paul Donaldson, email: p.donaldson@auckland.ac.nz; fax: +64-9-373-7499; Tel: +64-9-373-7599 ext 4625.

Postdoctoral Positions, Cardiovascular Pathophysiology: Two postdoctoral positions are available at Auburn University in an established research program focused on the pathogenesis of heart failure. Ongoing projects include the functional mechanisms of cardiac extracellular matrix remodeling mediated by mast cells, fibroblasts, cytokines, metalloproteinases, and integrins in normal and diseased hearts. Candidates should have a PhD in life sciences, with strong expertise in molecular techniques or tissue culture being preferred. Review of applications will begin May 15, 1999 and continue until a candidate is selected and recommended for appointment. Qualified candidates should send a letter of interest, a curriculum vitae, and the names and addresses of three references to: Joseph S. Janicki, PhD, Department of Anatomy, Physiology, and Pharmacology, 106 Greene Hall, Auburn University, Auburn, AL 36849-5517. Women and minorities are encouraged to apply. [AA/EOE]

Postdoctoral Research Position, Pulmonary Cell Biology: Three postdoctoral research positions are immediately available in the Pulmonary Lung Biology Program at National Jewish Medical and Research Center in Denver, Colorado. Two are sponsored by a project entitled "Role of SP-A and SP-D in Environmental Lung Disease," and the other is funded by a project in pulmonary fibrosis. The first project is to study the effects of ozone and nitrogen dioxide on the structure and function of surfactant proteins A and D. This project will involve protein structural analysis and use and construction of a variety of recombinant mutant forms of SP-A and SP-D. The second project is to measure the biological responses of alveolar type II cells to ozone and nitrogen dioxide in terms of surfactant protein expression, synthesis, and secretion and the production of inflammatory cytokines and growth factors. The final position is to determine the signal transduction pathways whereby keratinocyte growth factor stimulates type II cell differentiation and proliferation. All positions have guaranteed funding for at least two years. Qualified candidates should send a letter of introduction, a curriculum vitae, and the names and addresses of three references to Robert J. Mason, MD, Department of Medicine, National Jewish Medical and Research Center, 1400 Jackson Street, Denver, CO 80206. Fax: 303-398-1806; email: masonb@njc.org.

Want your ad sent to over 9,000 people? It's easy!

Ads are accepted for either positions available or positions wanted under all categories. The charge for this listing is only \$50. In addition to being posted here, positions are also listed on the APS Career Opportunities Web page (www.faseb.org/aps/career).

If you would like to have your ad listed in *The Physiologist* or on the APS Career Opportunities Web page, the following items are needed: a copy of the ad, the name of a contact person, and either a purchase order number, credit card number (with expiration date and name of cardholder), or billing address. Send the information to Melinda Lowy (e-mail: mlowy@aps.faseb.org; phone: 301-530-7165; fax: 301-571-8305).

Positions Available

Postdoctoral Research Fellowship: A postdoctoral research fellowship concerned with the effects of chronic hypoxia on the uterine/uteroplacental circulatory response to pregnancy. Vasoregulatory and growth studies are performed in human and experimental animal preparations using video microscopy, molecular biology, cell culture, ultrasound/Doppler techniques. Persons with PhD or MD with US citizenship or resident alien status may apply by sending cover letter with career goals and references to: Lorna G. Moore, PhD, Women's Health Research Center (B-133), University of Colorado Health Sciences Center, 4200 East 9th Avenue, Denver, CO 80262; e-mail: Lorna.G.Moore@UCHSC.edu.

Postdoctoral Associate: The University of Iowa College of Medicine, Department of Internal Medicine, Nephrology Division, is seeking a Postdoctoral Associate. Areas of research are ion channels in epithelial cells, molecular genetics of hypertension, regulation of the epithelial Na channel (ENaC), gene discovery in disease states, and cell biology of ion channel regulation. A doctoral degree is required; experience in molecular biology and/or genetics is desired. Please send resume and cover letter indicating #39286 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA 52242-1081. Women and minorities are strongly encouraged to apply. [EOE/AA]

Postdoctoral Position in Cardiovascular Electrophysiology: Postdoctoral position to study the regulation of low-voltage-activated, T-type, calcium channels and their role in endocrine secretory cells (aldosterone and insulin secreting). Studies will focus on areas including: 1) regulation of ion channel activity by heterotrimeric G protein subunits and 2) molecular events underlying channel modulation induced by CaMKII. Methodologies include ion channel biophysics, molecular biology, biochemistry involving expression of recombinant G proteins and CaMKII isoforms, and adenovirus delivery systems. Preference will be given to candidates with experience in whole cell and/or single-channel recording techniques. PhD or MD degree is required. Please send curriculum vitae and 3 letters of support to Dr. Paula Q. Barrett, Department of Pharmacology, University of Virginia School of Medicine, 1300 Jefferson Park Avenue, Charlottesville, VA 22908. Tel: 804-924-5454; Fax: 804-982-3878; email: pqb4b@virginia.edu; Internet: <http://www.med.virginia.edu/medicine/basic-sci/pharm/Pharm.html>.

Postdoctoral Positions in Functional Neuroimaging: Two postdoctoral positions are available immediately at the Medical College of Wisconsin to study the physiological and biophysical transduction mechanisms leading to changes in fMRI signal. The first position uses animal models (both MRI and physiological procedures) to study how neuronal-induced changes in blood flow/volume/oxygenation contribute to the fMRI signal. A strong background in physiology, neuroscience, and/or physics is required. The second position examines fMRI contrast mechanisms and the nature/role of physiological fluctuations. A strong background in physics and mathematics is required. Both positions are part of an NIMH Program Project Grant supporting the laboratories of Kathleen Donahue, Andrew Greene, Anton Hudetz, James Hyde, and Elliot Stein. Individuals must have an earned PhD and/or MD degree and be a permanent US resident. Send a curriculum vitae, statement of research background and interests, and the names and addresses of three references to Dr. Elliot Stein, Medical College of Wisconsin, 8701 Watertown Plank Road, Milwaukee, WI 53226. Email: estein@mcw.edu; Internet: <http://www.biophysics.mcw.edu>. [EOE/AA][M/F/D/V]

Postdoctoral Position: A postdoctoral researcher position is available in an NIH-funded laboratory. Start date is as early as June 1999. The funding for the position is three years. A PhD degree in physiology, pharmacology, or neuroscience, or an equivalent professional degree with experience in laboratory animal research, is required. Citizenship requirements: US, Canadian, H-visa, or J-visa. The individual will participate in a research program evaluating neurohumoral control of the circulation with an emphasis on central nervous system regulation of sympathetic outflow. Current projects include evaluation of 1) brainstem pathways modulating efferent sympathetic outflow; 2) effects of pregnancy on cardiovascular control; and 3) central nervous system effects of ovarian hormones on cardiovascular function and regional sympathetic nerve activity. Neurohumoral control of the circulation is an area of emphasis at the Dalton Cardiovascular Research Center at the University of Missouri and the environment is excellent for training. Faculty, postdoctoral fellows, and graduate students participate in weekly journal clubs and research conferences and collaborative projects between laboratories are common. Salary is negotiable (range, \$26,000 - \$28,000). Contact Information: Cheryl M. Heesch, PhD, University of Missouri, Dalton Cardiovascular Research Center, Research Park, Columbia, MO 65211. Tel: 573-882-2359; fax: 573-884-4232; email: heeschc@missouri.edu.

Positions Available

Postdoctoral Position: Postdoctoral research fellowship in functional, cellular, and molecular aspects of the pulmonary circulation is available to persons with a PhD, MD, or DVM degree and US citizenship or alien resident status. Join a well-funded vascular research group in a multi-investigator environment dedicated to vascular adaptation to hypoxia. Investigate mechanisms of altered vascular function and structure and roles of altered vasoreactivity, vasoactive modulators cellular growth, matrix deposition, ion channel expression, and gene expression and delivery. Send a cover letter identifying career goals and references to: Ivan F. McMurtry, PhD, Cardiovascular Pulmonary Research Laboratory, University of Colorado Health Sciences Center, B-133, 4200 E. Ninth Avenue, Denver, CO 80262. Email: ivan.mcmurtry@uchsc.edu.

Exercise Physiology/Autonomic Nervous System Scientist: A position is available for a PhD level scientist with expertise in human research. Our specific need is for someone expert in exercise physiology and/or studies on autonomic nervous system function. The individual would work with a multidisciplinary team focusing on understanding such unexplained illnesses as chronic fatigue syndrome and fibromyalgia. There will be sufficient time available for the scientist to develop his/her own particular experiments on our subject population also. The selected individual would receive an academic appointment in the Department of Neurosciences at the New Jersey Medical School, which is the site of our CFS Center. The location is a 40-min drive either from Manhattan or the Poconos. Interested individuals should fax their curriculum vitae to Benjamin H. Natelson, Professor of Neurosciences, New Jersey Medical School at 973-676-4661 or attach same in an email to bhn@nbunj.jvnc.net.

Undersea Biomedical Scientist: The US Navy anticipates three openings in 1999 in its manned undersea biomedical research program. Positions are for entry to mid-career PhD scientists to join a growing multi-disciplinary team dedicated to enhancing diving performance and safety and submarine escape and rescue. These challenging and rewarding positions will be located at the US Navy Experimental Diving Unit (NEDU) in Panama City, FL. We seek energetic colleagues with a passion for quality research and strong experimental skills. Human systems physiology, quantitative methodology, and bioengineering skills are of particular interest. High priority is assigned to publication of results. Undersea experience is not required. Send expressions of interest with vita to: Dr. Hugh D. Van Liew, Chair, Search Committee, Navy Experimental Diving Unit, 321 Bullfinch Road, Panama City, FL 32407. Email: vanliew_hugh@hq.navsea.navy.mil; tel: 850-230-3157 or 850-230-3100; Internet: <http://www.nedu.org/>. [EOE]

Assistant Research Scientist: The University of Iowa College of Medicine, Department of Internal Medicine, Nephrology Division, is seeking an Assistant Research Scientist. The successful candidate must demonstrate satisfactory knowledge of research techniques relating to membrane transport problems. A person in this classification must have the academic knowledge of a discipline that is generally associated with a doctoral degree or a professional equivalent. In addition, the person will have demonstrated the ability to plan and execute a research project through progressively responsible independent research work and have research experience in the area of molecular biology. A beginning publication record is desired, as are a PhD in physiology, biology, genetics, or a related discipline; experience with molecular biology and molecular methods used in the biology of ion channels and/or membrane proteins; research experience in the field of membrane transport or a related field; and demonstrated ability to obtain outside funding for research. Please send resume and cover letter indicating #39279 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA 52242-1081. Women and minorities are strongly encouraged to apply. [EOE/AA]

Assistant Research Scientist: The University of Iowa College of Medicine, Department of Internal Medicine, Infectious Diseases Division, is seeking an Assistant Research Scientist to perform basic or applied research in areas of mycobacterial genetics and transcriptional regulation of macrophages genes, identify and select the areas to be studied, the approach to them, and the results obtained. A person in this classification has the academic knowledge of a discipline that is generally associated with a PhD or the professional equivalent is required. In addition, the person will have demonstrated the ability to plan and execute a research study through some progressively responsible independent research work. Experience in the techniques for mycobacterial genetics, including DNA and RNA isolation, cloning, the generation of mutants in *M. tuberculosis* and nontuberculous mycobacteria and the development of mycobacterial libraries is desirable. Experience in the cultivation of macrophages, in the isolation of DNA and RNA, and in Northern blotting, RNase protection assays, and cloning is desirable. A beginning publication record is desirable. Please send resume and cover letter indicating #39284 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, IA 52242-1081. Women and minorities are strongly encouraged to apply. [EOE/AA]

Positions Available

Assistant Professor in Physiology - Biological Sciences (Non-Tenure Track): Ohio University Department of Biological Sciences seeks to fill an Assistant Professor of Physiology (non-tenure track) position for one academic year, beginning September 1999. Lecture courses to be taught could include Human Biology for non-majors, a physiology course with emphasis on cell and neurophysiology, and systems physiology. Laboratory teaching responsibilities will be in physiology. Teaching will average 20 contact hours per week with academic advising also required. A PhD degree in a biological science is required. Minimum salary is \$31,000 plus associated benefits. Send resume, transcripts, a statement of teaching experience and philosophy, and three letters of recommendation to: Assistant Professor Search, Jean Witkowski, Biological Sciences, Ohio University, Athens, OH 45701. Review of applications will begin May 7, 1999 and continue until position is filled. Additional information can be found at our website: cscwww.cats.ohiou.edu/~biosdept. [EOE/AA]

Associate/Assistant Professor: The Program for Research and Education in Intestinal Disorders (PREID) at Children's Hospital Medical Center, Cincinnati, Ohio, is seeking a Gastrointestinal Physiologist. The research focus of the PREID is in inflammatory and secretory disorders of the intestine with three identified central areas of investigation: 1) mechanisms of intestinal infection/diarrheal disease, 2) pathophysiology and therapy of inflammatory bowel disease, and 3) pathophysiology and treatment of food allergy. A gastrointestinal physiologist is desired to join this program in order to develop an independent, extramurally funded research program and to expand existing studies by adding the capability of bioelectric measurement studies in mice. Laboratory space and funds are committed to this endeavor. The successful candidate should have a proven track record of support and publications for appointment at the Associate Professor level or have a high likelihood of continued success in these areas for appointment at the Assistant Professor Level. Candidates should hold PhD, MD, MD/PhD, DVM, or equivalent degrees. Investigators associated with the PREID will be expected to train postdoctoral fellows and graduate students. Those individuals with clinical training will contribute in limited measure to the clinical activities of the Division of Pediatric Gastroenterology and Nutrition and will also participate in resident education. For further information please contact: Mitchell B. Cohen, MD, Director of PREID, Division of Pediatric Gastroenterology and Nutrition, Children's Hospital Medical Center, 3333 Burnet Avenue, Cincinnati, Ohio 45229-3039. Tel: 513-636-4415; fax: 513-636-7805; email: mitchell.cohen@chmcc.org. Women and minorities are encouraged to apply. [AA/EOE]

Assistant Professor of Biological Sciences, Saint Louis College of Pharmacy: The Division of Pharmaceutical Sciences at the Saint Louis College of Pharmacy invites applications for a full-time, tenure-track faculty position in the Biological Sciences. Primary teaching responsibilities (both lecture and laboratory) will be in the Human Physiology course sequence. Opportunity exists for some teaching in related biological science courses and for the development of elective courses in the candidate's area of specialization. The applicant should possess the PhD or equivalent, in physiology or a related biological science and should be committed to ongoing innovation and improvement in the delivery of college undergraduate science education. Experience teaching at the undergraduate level and familiarity with ability-based education are also helpful. Letters of application, a current Curriculum Vitae, names and address of three references, and a written statement of the applicant's philosophy of science education should be sent to: John M. Beale, PhD, Director of Pharmaceutical Sciences, Saint Louis College of Pharmacy, 4588 Parkview Place, Saint Louis, MO 63110-1034. In order to ensure consideration, all application materials should be received no later than June 15, 1999. [EOE]

Assistant/Associate Professorships, Department of Pharmacological and Physiological Science: Saint Louis University, a Catholic Jesuit Institution dedicated to education, research, and health care, is seeking applicants for a faculty position in the Department of Pharmacological and Physiological Science at Saint Louis University School of Medicine. The position is a tenure-track appointment at the Assistant or Associate Professor level. We offer an environment rich in senior level scientific experience, start up funds, laboratory space, and a record of highly successful and continuing extramural research funding. Preference will be given, but not restricted, to individuals with demonstrated experience in the application of modern techniques in research of the nervous or endocrine systems. Interested persons should send a curriculum vitae, three letters of reference, and a description of research interests and objectives to: Dr. Thomas C. Westfall, Professor and William Beaumont Chair, Department of Pharmacological and Physiological Science, Saint Louis University School of Medicine, 1402 South Grand Boulevard, St. Louis, MO 63104. Women and minorities are encouraged to apply. [EOE/AA]

Positions Available

Assistant Professor: The Department of Physiology and Biophysics solicits applicants for a tenure-track position of Assistant Professor in epithelial physiology/biophysics. Qualifications required include a PhD degree in biophysics with extensive (postdoctoral and early faculty level) specific expertise in the studies of solute and water flow across gastrointestinal epithelia using up-to-date electrophysiological, isotopic, fluorescence, and patch-clamp recording techniques. The individual must have sufficient experience to participate in team teaching of epithelial physiology to first-

and second-year medical students, of human physiology and ion channels to graduate students in a combined PhD program, and of radiation physics to medical physics graduate students. The position is contingent upon grant funding. Applications to include curriculum vitae, list of publications, and statement of intent, along with three references, should be sent to P.K. Lauf, MD, Chair, Department of Physiology and Biophysics, Wright State University, 3640 Colonel Glenn Highway, Dayton, OH 45435-0001. Closing Date: June 4, 1999. [AA/EOE]

Equipment Exchange

Artin Terhakopian is looking for a used EKG machine that is functioning and has printing capability. It is not important if the machine records several leads at once or just one lead at a time. At the minimum, the machine should have limb lead recording capability. I would prefer a machine that is light, less than 50 kg (110 lbs), and can operate with 110 or 220 volt power inputs.

The machine will be shipped to Etchmiatzin, Armenia, to be used by the cardiology department of the city hospital there. Those who are interested in donating this equipment should contact Artin via e-mail at terhakop@oxy.edu or call (301) 585-1597.

Book Reviews

The Human Use of Animals: Case Studies in Ethical Choice

F. Barbara Orlans, Tom L. Beauchamp, Rebecca Dresser, David B. Morton, and John P. Gluck.

New York: Oxford University Press, 1998, 330 pp., illus., index, \$26.50. ISBN: 0-19-511808-8.

This book is primarily a set of case studies on animal use. To effectively analyze these case studies, the introductory chapter prepares the reader by providing broad background information. The introductory chapter contains discussions of morality and the moral community, animal minds, the moral implications of Darwin's theory of evolution, defining moral standing, and descriptions of moral philosophies (utilitarianism, Kantianism, and rights theories). This introductory chapter also includes discussions of the justification of the human uses of animals and a consideration of alternatives to the use of animals.

Subsequent chapters are individual case studies covering most major areas of animal use and each stands alone from all others. Four well-known case studies are presented in the section entitled Biomedical Research, including "Baboon-Human Liver Transplants: The Pittsburgh Case," "Head Injury Experiments on Primates at the University of Pennsylvania," "Patenting Animals: The Harvard 'Oncomouse,'" and "What Does the Public Have a Right to Know," a case involving the Progressive Animal Welfare Society and the University of Washington, Seattle. Most case studies provide a historical description of the problem and also include a discussion of the ethical issues and welfare concerns.

Other sections include case studies in the use of animals in cosmetic safety testing, in behavioral research, in wildlife research, in education, in food and farming, as companion animals, and in religious rites.

I was most impressed with the short primer on reasoning through moral problems that is contained in the intro-

ductory chapter. It is noted by the authors that problems normally appear when "some evidence or reason indicates that an act is morally right, and some evidence indicates that the act is morally wrong, but the evidence on both sides is inconclusive." So how does a person reason through such dilemmas? Several methods are described that can be used to help understand and more objectively approach the problem, including specification of one's general moral commitments, balancing values, and the use of facts.

This book will make you reflect on your own ethical outlook and does so in a surprisingly nonjudgemental fashion. If you are a member of your institutional animal care and use committee; are a member of faculties in basic science, law, medicine, veterinary medicine, philosophy, or ethics; or have a general interest in the welfare of animals, then this easy-to-read book is certainly recommended. ♦

*C. Terrance Hawk
Duke University*

Book Reviews

Cardiac Gap Junctions: Physiology, Regulation, Pathophysiology and Pharmacology

Stefan Dhein.

New York: Karger, 1998, 148 pp., illus., index, \$112.25.

ISBN: 3-8055-6567-4.

The subject matter of Stefan Dhein's monograph *Cardiac Gap Junctions* is topical and decidedly relevant to our understanding of normal cardiac function, as well as the pathogenesis of several disease states, including myocardial ischemia and heart failure, in which conduction defects and cardiac rhythm disturbances may lead to sudden death. This relatively compact volume is highly accessible due in part to its brevity, and in part to the fact that its eight chapters are well organized in a logical progression from introductory topics, such as cellular coupling and anisotropy, to structure and diversity of gap junction channels, distribution, function, regulation, gap junctions in cardiac disease, pharmacologic interventions, and, finally, to methods for investigating gap junctions.

The structure and size of this compendium is patterned after a primer with methods on myocyte isolation and culture, immunohistochemistry and double whole cell voltage-clamp techniques among others (Chapter 8) and a list of suppliers of selected items following the Appendix. The downside of such a short text is that it lacks depth where many readers, both novices and experienced investigators in the field, may be looking for a more thorough, scholarly treatment of the topics. Although the reference list is broad and inclusive, some of the literature review is more cataloging than a thoughtful, selective

integration that would better help those "who wish to obtain information on cellular coupling in the heart or who wish to enter this new field of research." This is not to say that Dhein has not worked hard at integrating multiple studies on different connexin isoforms in different species, as illustrated, for example, in his discussion of the effect of pH on junctional conductance in Chapter 4. Additional strengths include judicious caveats throughout the text. Three notable examples are 1) acknowledgment that ischemia is so complex that it is impossible to ascribe uncoupling to only one or two factors involved (Chapter 6); 2) reminders to avoid generalizations in interpretation of conductance and coupling data from different tissues or different species (e.g., in his discussion of β -adrenergic receptor stimulation and PKA effects on intercellular coupling in Chapter 7); and 3) cautionary remarks on the limitations of using lipophilic uncoupling agents in investigations of junctional conductance (Chapter 7). In addition, Dhein addresses some key unanswered questions for the uninitiated, such as how are gap junction channels distributed within a disk (Chapter 3)? What are the consequences of gap junctional uncoupling? Is it a benefit or a risk, or even both (Chapter 6)?

Although well organized, the text is not particularly well-written. Errors in grammar and spelling were distracting for this reviewer and in some cases detracted from a full understanding of some of the more subtle points. For such a basic text (the Appendix contains the one- and three-letter abbreviations for the amino acids), many terms and abbreviations are not defined. This is true for some equations in Chapter 1, for terms such as the Merrifield technique using the Fmoc, strategy, and for

abbreviations such as DDK or RPMI. Discussions of increases in intracellular Ca^{2+} secondary to either decreased extracellular Na^+ or increased intracellular Na^+ fail to mention reverse-mode $\text{Na}^+/\text{Ca}^{2+}$ exchange as a mechanism but instead describe an "impairment in the $\text{Na}^+/\text{Ca}^{2+}$ exchange mechanism." Dhein's own work with an antiarrhythmic peptide is described in some length, even though this area remains controversial and neither the antiarrhythmic properties nor the enhanced coupling properties of this peptide have been corroborated by other investigators. Finally, the Suppliers List is geared mainly for European readers (mostly European addresses and phone numbers are given) and does not include a listing for Zymed, an important commercial source for anti-connexin antibodies.

In summary, Stefan Dhein's monograph on cardiac gap junctions succeeds as an overview and introductory text describing these vital myocytic structures responsible for impulse propagation and cell-to-cell communication in the heart. Gap junction structure and function are so essential to the functioning of myocardial tissue in health and disease that this book is recommended reading for anyone who is unfamiliar or only superficially familiar with cardiac gap junctions. The fact that this monograph is already becoming outdated (recent publications on transgenics, specificity of ionic conductances, and connexin protein turnover could not be included) attests to the rapidly advancing nature of this field. Such advances will ultimately impact significantly on our understanding of cell-to-cell coupling and the role it plays in many cardiovascular diseases. ♦

Kathryn A. Yamada
Washington University

Book Reviews

Advanced Nutrition: Micronutrients

Carolyn D. Berdanier.

Boca Raton, FL: CRC, 1998, 236 pp., illus., index, \$89.95.
ISBN 0-8493-2664-8

This book represents the second volume of a two-volume set on advanced nutrition. The first volume, entitled *Advanced Nutrition: Macronutrients*, focused on absorption, metabolism, excretion, and function of the various sources of energy. It also provided a detailed discussion of energy balance. This volume, *Advanced Nutrition: Micronutrients*, presents a basic and advanced discussion on micronutrients and their role in cell and whole body physiology. The emphasis is on chemical structure, biopotency, metabolism, and human health. Over the past several years, a number of research reports have documented progress in understanding the cellular and molecular basis of nutrient effects on cell function. This volume has incorporated this new information.

The book is written by Carolyn D. Berdanier, PhD, Professor of Foods and Nutrition, University of Georgia, and illustrated by Toni Kathryn Adkins. The format of the book is a chapter-based textbook. Each chapter contains data (tables or figures) from original research articles or compiled data from multiple articles along with illustrations. The writing style is clear and easy to understand.

There are eight units (or chapters): 1) micronutrients, human health, and well being; 2) integration of the functional aspects of vitamins and minerals; 3) fat-soluble vitamins; 4) water-soluble vitamins; 5) other organic nutrients; 6) minerals and living systems; 7) macrominerals; 8) trace minerals. Units 1 and 2 set the stage for how these micronutrients are involved in cell function; whether it is as a cofactor for a particular enzyme (vitamin B6), a component of a hormone (iodine), or a hormone controlling the activity of a nuclear receptor (vitamin D).

The fat soluble vitamins A, D, E, and K are presented in Unit 3, while the water-soluble vitamins, i.e., ascorbic acid, thiamin, riboflavin, niacin, vitamin B6, pantothenic acid, biotin, folic acid, and vitamin B12, are discussed in Unit 4. Unit 5 covers choline, carnitine, inositol, and other compounds with biological activity. Each micronutrient receives a similar treatment, i.e., a) overview; b) structure; c) biopotency; d) chemical and physical properties; e) chemical and bioassays; f) biosynthesis; g) sources; h) absorption, metabolism, and function; i) deficiency and/or excess; and j) recommended dietary allowance.

Unit 7 examines macrominerals: sodium, potassium, chloride, calcium, phosphorus, and magnesium. The format used in Units 4 through 6 is used here. However, there is a large section that addresses calcium and phosphorus and their roles in skeletal structure, muscle contraction, cell signaling, and

function. The last unit (Unit 8) examines trace minerals such as iron, zinc, copper, selenium, iodine, molybdenum, manganese, and cobalt. As above, each mineral is treated similarly with an overview, absorption, metabolism and excretion, function, deficiency/excess (toxicity), and recommended dietary allowance.

The text covers each micronutrient in detail with special attention to its role in cell function at the biochemical level and, if known, its effects on gene expression. Basic concepts of inorganic chemistry of the mineral are presented as a way of understanding how each micronutrient functions in biological systems. Where appropriate, interspecies comparison provides opportunities to learn how specific nutrients function and interact with other nutrients.

In summary, this book represents an in-depth treatment of micronutrients with supplemental reading for follow-up on specific topics. This textbook has integrated basic biochemical concepts of micronutrients with the new findings about nutrient effects on gene expression. The style of presentation coupled with the inclusion of primary or compiled data (74 tables) and the generous use of illustrations (107 figures) makes this a very readable and informative text. It will be a valuable book for graduate and medical students and a useful handbook for scientists actively working in this area of research. ♦

Donald B. Jump
Michigan State University

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Book Reviews

Principles of Animal Design: The Optimization and Symmorphosis Debate

Ewald R. Weibel, the late C. Richard Taylor, and Liana Bolis (Editors). Cambridge, : Cambridge Univ. Press, 1998, 314 pp., illus., index, \$32.95. ISBN: 0-521-58370-5.

In 1981, the respiratory physiologists Weibel and Taylor proposed a theory of optimal design in physiological systems (symmorphosis). This theory suggested that functional performance of structural elements satisfies but does not exceed maximum expected capacity. Particularly for linked elements in a physiological cascade, no one step is likely to act as limiting on whole-system flux. Rather, maximum capacity of individual elements was suggested by Weibel and Taylor to be matched across the entire network, thereby providing for economic design. In an epic series of papers, Taylor, Weibel, and colleagues tested the symmorphosis hypothesis for the mammalian respiratory system and concluded that design was indeed suboptimal: pulmonary diffusing capacity among mammals of different sizes exceeded the oxygen flux capacity of other elements in the respiratory cascade. In spite of the falsification of the original hypothesis, and questions about the numerical approach, symmorphosis has persisted conceptually and operationally in the comparative physiology literature. Is there indeed any evidence for symmorphosis?

To answer this question, *Principles of Animal Design* has assembled numerous workers in diverse fields of physiol-

ogy to provide short (3-8 pages) analyses of potential optimization for their particular structure of interest. Most evident from this exercise is the fact that optimal design resides in the eye of the beholder. Evolutionary biologists (Feder, Garland) indicate numerous reasons as to why optimal design is an unlikely outcome. Phylogenetic constraints, genetic covariance of traits, multiple functional demands on individual structures, phenotypic plasticity, and related phenomena disrupt any straightforward evolutionary march toward optimality. The suggestion of safety factors in design (Diamond) as a possible explanation for excessive functional capacity begs the question as to the actual nature of selective demands imposed on animals. For example, unpredictable functional demands on structural components (McNeill Alexander) confound most optimization arguments. Workers in fields as diverse as the neurophysiology of compound eyes (Laughlin), avian ontogeny (Ricklefs), molecular physiology (Hochachka), bone design (Biewener), and animal locomotion (Rome) variously conclude that structures are very well adapted to functional demand (in support of symmorphosis) or that symmorphosis is inherently untestable.

The overriding problem with such broad surveys is definitional - what constitutes optimality? For some authors in this volume, any qualitative or even superficial appearance of matching between form and function constitutes optimal design. Economical (rather than optimal) design, or plasticity in relation to altered demand, is similarly adduced in support of the hypothesis.

Quantitative analyses of optimal design are few and far between. The format of the book, with many short treatments of particular study systems, certainly renders individual areas of research more accessible to readers less-acquainted with the particular fields under question. Equally constrained, however, is the depth of presentation and precision of analysis for any given case study.

In concluding remarks, Weibel comments on the current state of symmorphosis and shifts his original position. He suggests that the concept of optimal design might be more appropriately viewed as the process of moving towards optimization in the face of variable functional demands, intrinsic structural and genetic constraints, and phenotypic plasticity. Certainly, the Darwinian concept of evolution by natural selection incorporates these and additional factors in explanations both of historical and current patterns of adaptation, physiological or otherwise. A key problem is that the environmental/functional demands, the responses to which are supposedly optimized, differ spectacularly. This may explain the major differences in the structure function match. The overwhelming absence of evidence for optimal design in multiple biological systems, when combined with diverse and well-documented evolutionary mechanisms that would render such an outcome unlikely, indicates that optimization theories will necessarily remain controversial within the field of comparative physiology. ♦

Robert Dudley and Carl Gans
University of Texas at Austin

Change is Good!

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<http://www.faseb.org/aps>

Book Reviews

The Melatonin Hypothesis: Breast Cancer and Use of Electric Power

Richard G. Stevens, Barry W. Wilson, and Larry E. Anderson (Editors). Columbus, OH: Battelle, 1997, 760 pp., illus., index, \$87.50. ISBN: 1-57477-020-9.

One of the burning questions facing epidemiologists and cancer researchers is the explanation for the rising rates of breast cancer during the course of the twentieth century. The above referenced book presents, defines, and reviews the research into one possible explanation, the melatonin hypothesis. This hypothesis, inspired by the increase in the use of electric power concurrent with the increase in breast cancer rates, was originally developed in 1987 by Richard Stevens, one of the co-editors of the book (*Am. J. Epidemiol* 141:123-134, 1987). The theory is based on the observation that exposure to bright light at night disrupts the function of the pineal gland, suppressing the nocturnal peak in the production of the hormone melatonin. In many seasonal breeding animals, melatonin serves as a cue for the changing day lengths and inversely effects the production of reproductive hormones by the gonads. Therefore, exposure to light at night and possibly electromagnetic fields, nonionizing radiation in the extremely low end of the frequency spectrum, might lead to an increased risk of breast cancer in humans through the suppression of the hormone melatonin and the subsequent increase in circulating prolactin and estrogen. The reproductive hormones may increase the growth and prolifera-

tion of hormone-sensitive cells in the breast, potentially increasing tumor formation. Melatonin itself has also been shown to have oncostatic properties, inhibiting tumor growth in vivo and in vitro. Therefore, a decrease in levels of melatonin could also increase cancer risk directly.

This book brings together the current knowledge on the steps of the biological mechanism outlined in the melatonin hypothesis. Different experts in the appropriate fields contributed chapters, and the book is well organized into five parts. The first part includes basic overviews on breast cancer, melatonin, and electromagnetic fields. For readers not familiar with either breast cancer epidemiology, the regulation and effects of melatonin, or the physics of electromagnetic fields, these chapters provide valuable information in a succinct way. The second part of the book deals with the mechanisms of magnetic field perception and the interaction between magnetic fields and biological systems. Parts three and four describe the evidence in support of the melatonin hypothesis. The chapters are either reviews of the current literature or descriptions of experiments performed in the authors' laboratories. In vitro and in vivo experiments on rodents, nonhuman primates, and humans are included. In part three, chapters on the "circumstantial case" are organized into three sections following the different components of the melatonin hypothesis: 1) melatonin effects on breast cancer, 2) light effects on melatonin, and 3) electromagnetic field effects on melatonin. Then the chapters in part four present the experimental and epidemiological research involved specifically

with exposure to magnetic fields and breast cancer, followed, in the fifth part, by a summary and conclusions by the co-editors.

The book is a useful reference on the state of the evidence for the link between electric power and breast cancer, as well as on the basic biology and physics relevant to the hypothesis. It is a valuable tool for readers of varying backgrounds, providing a one-stop source for general concepts and an extensive bibliography of the literature. Each chapter stands alone, with its own background and summary sections. While this structure can get repetitive if reading the book straight through, it is useful to the reader who is only interested in one or two chapters. In general, each author appropriately presents controversial material. The melatonin hypothesis is not universally accepted and, to date, the experimental and observational evidence in support of the hypothesis as an important explanation of increased breast cancer risk has been equivocal. The authors fairly present the data for and against the hypothesis, discuss strengths and limitations in the research, and propose avenues for future study.

I recommend this book either as a text or a reference for scientists of many disciplines—epidemiologists, cancer researchers, physicists and biologists—interested in the interactions of electromagnetic fields with biological mechanisms, the role of melatonin in tumorigenesis, and in potential environmental risk factors and breast cancer.



Francine Laden
Harvard University

**Reminder: Minority Travel Fellowships available for APS Conference on
"Determinants of Vigilance: Interaction Between the Sleep and Circadian Systems."**

**Abstract Deadline is July 16.
Application Deadline is July 23.**

Application is available online at the APS website at www.faseb.org/aps/OCTAPPDF

Books Received

- A Cursing Brain? The Histories of Tourette Syndrome.*
Howard I. Kushner.
Cambridge, MA: Harvard University Press, 1999, 303 pp., illus., index, \$29.95.
ISBN: 0-674-18022-4.
- Antioxidant Food Supplements in Human Health.*
Lester Packer, Midori Hiramatsu, and Toshikazu Yoshikawa (Editors).
San Diego, CA: Academic, 1999, 511 pp., illus., index, \$99.95.
ISBN: 0-12-543590-8.
- Atlas of Sleep Medicine in Infants and Children.*
Stephen H. Sheldon, Susan Riter, and Mark Detrojan (Editors).
Armonk, NY: Futura, 1999, 288 pp., illus., index, \$150.00.
ISBN: 0-87993-423-9.
- Carbon Dioxide and Environmental Stress.*
Yiqi Luo and Harold A. Mooney (Editors).
San Diego, CA: Academic, 1999, 418 pp., illus., index, \$69.95.
ISBN: 0-12-460370-X.
- Cerebral Ischemia: Molecular and Cellular Pathophysiology.*
Wolfgang Walz (Editor).
Totowa, NJ: Humana, 1999, 288 pp., illus., index, \$125.00.
ISBN: 0-896-03540-9.
- Handbook of Physiology. Section 7. The Endocrine System, Vol. V. Hormonal Control of Growth.*
Jack L. Kostyo and H. Maurice Goodman (Editors).
American Physiological Society, 1999, 831 pp., illus., index, \$179.50.
ISBN: 0-19-511305-5.
- Insulin Resistance: The Metabolic Syndrome X.*
Gerald M. Reaven and Ami Laws (Editors).
Totowa, NJ: Humana, 1999, 374 pp., illus., index, \$145.00.
ISBN: 0-89603-588-3.
- Mathematical Physiology.*
James Keener and James Sneyd.
Interdisciplinary Applied Mathematics, Vol. 8.
New York: Springer-Verlag, 1998, 766 pp., illus., index, \$69.95.
ISBN: 0-387-98381-3.
- Melatonin in the Promotion of Health.*
Ronald R. Watson (Editor).
CRC Series in Modern Nutrition.
Boca Raton, FL: CRC, 1999, 224 pp., illus., index, \$89.95.
ISBN: 0-8493-8564-4.
- Methods for Investigation of Amino Acid and Protein Metabolism.*
Antoine E. El-Khoury (Editor).
Methods in Nutrition Research.
Boca Raton, FL: CRC, 1999, 259 pp., illus., index, \$99.95.
ISBN: 0-8493-9612-3.
- NMDA Receptor Protocols.*
Min Li (Editor).
Methods in Molecular Biology, Vol. 128.
Totowa, NJ: Humana, 1996 pp., illus., index, \$69.50.
ISBN: 0-89603-713-4.
- Nutritional and Environmental Influences on the Eye.*
Allen Taylor (Editor).
CRC Series in Modern Nutrition.
Boca Raton, FL: CRC, 1999, 285 pp., illus., index, \$129.95.
ISBN: 0-8493-8565-2.

Announcements

2000-2001 Fulbright Awards For US Faculty and Professionals

Opportunities for lecturing or advanced research in nearly 130 countries are available to college and university faculty and professionals outside academe. US citizenship and the PhD or comparable professional qualifications are required. For lecturing awards, university or college teaching experience is expected. Foreign language skills are needed in some countries, but most lecturing assignments are in English. Internet: www.cies.org

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DEADLINES:

August 1, 1999 for lecturing and research grants in academic year 2000-2001
November 1, 1999 for international education and academic administrator seminars
January 1, 2000 for NATO advanced research fellowships and institutional grants

Announcements

Charles E. Culpeper Foundation Scholarships

The Charles E. Culpeper Foundation is currently accepting applications for its Year 2000 Scholarships in Medical Science Program designed to support the career development of academic physicians.

Up to four awards of \$100,000 per year for three years will be made to US medical schools or equivalent US educational institutions on behalf of candidates who are US citizens or aliens who have been granted permanent US residence (proof required); who have received their MD degree from a US medical school, or the equivalent of an MD degree from an educational institution equivalent to a US Medical School in 1991 or later (except under extraordinary circumstances, as approved by the Foundation); and who are judged worthy of support by virtue of the quality of their research proposals. All scientific research relevant to human health is eligible for

consideration. No institution may nominate more than one candidate.

In selecting awardees, emphasis will be on identifying young physicians with clear potential for making substantial contributions to science as academic physicians. Since January 1988, 37 physicians have been selected as Charles E. Culpeper Foundation Medical Scholars.

Deadline for applications is **August 16, 1999**. Awards will be announced in January 2000, for activation on or about July 1, 2000. Application forms and instructions may be obtained on the Web at www.culpeper.org or by contacting the Charles E. Culpeper Foundation at Financial Centre, 695 East Main Street, Stamford, CT 06901-2155; Tel: 203-975-1240; Fax: 203-975-1847.

Announcements

Award of the Professor Pierre Rijlant Academic Foundation of Cardiac Electrophysiology

The Award is destined to recompense a scientist who has made a major contribution to the field of cardiac electrophysiology, in particular as regards the following subjects: hybrid computers in electrocardiography, application of computers to electrocardiography and vectography and analogue simulation.

For the 1998 prize the Foundation received 16 applications from various countries in Europe, America and Asia.

The next Award is scheduled for 2000 and the amount will be 500.000 BF (approximately \$13,000).

Potential applicants are asked to forward the following documents in triplicate, to the Secretary's attention: curriculum vitae, a summary (less than five pages) of last five year works, main publications quoted to have to be enclosed; documents to be mailed prior to December 31, 1999.

In the event where any prize of an amount higher as compared to the Award of the Professor Pierre Rijlant Academic Foundation has been obtained during the period of the three previous years, the applicants concerned will be barred from being chosen. The paper will have to be written in French, Dutch, German, or English.

Any further information will be provided gladly by the Secretary of the Foundation, at the following address:

Dr. Marc Renard

Royal Academy of Medicine of Belgium

Palais des Académies

Rue Ducale, 1

1000 Brussels, Belgium

Advanced Pediatric Life Support Courses

November 8-10, 1999, June 19-21, 2000

Johns Hopkins University School of Medicine and the Johns Hopkins Pediatric Trauma Center are sponsoring a course designed to familiarize physicians with the most common life-threatening conditions in children and to develop skills that allow the physician to competently resuscitate, stabilize, evaluate, and triage a seriously injured or ill child. In order to provide maximum opportunity for presentation of didactic material, a variety of formats will be used, including formal lectures, question and answer periods, skill stations, procedure laboratory sessions, polishing technical procedures, and small-group case discussions. Each registrant will attend all skill stations and a laboratory session on alternate afternoons. Enrollment is limited. A copy of the recently published second edition of the *Golden Hour—The Handbook of Advanced Pediatric Life Support* will be given to each registrant.

The Johns Hopkins University School of Medicine is accredited by the accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. The Johns Hopkins University designates this continuing medical education for up to 21 credit hours in Category 1 of the Physician's Recognition Award of the American Medical Association.

FEE: \$675

CONTACT:

Program Coordinator

Office of Continuing Medical Education

Johns Hopkins University School of Medicine

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Baltimore, MD 21205-2195

Phone: 410-955-2959

Fax: 410-955-0807

Email: Cmenet@jhmi.edu

Internet: <http://www.med.jhu.edu/cme>

G. Edgar Folk, Jr. Award

The G. Edgar Folk, Jr., Senior Physiologist Fund has been set up through the generosity of family and former graduate students and postdoctoral fellows 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.

When the Award Fund was established, it was announced that its purpose was for the Senior Physiologists Committee "to have fun assisting colleagues and for Emeritus APS members to keep in closer touch with APS."

Announcements

Volvo Awards for Low Back Pain Research 2000

In order to encourage research in low back pain, the Volvo Company also this year has sponsored three prizes of \$10,000 each. Awards will be made competitively on the basis of scientific merit in one or more of the following three areas:

- 1) Clinical studies
- 2) Bioengineering studies
- 3) Studies in other basic science areas

Papers submitted for the contest must contain **original** material, not previously published or submitted for publication. A multiple authorship is acceptable. The manuscripts, in the English language, should be in the form of a complete report, including original illustrations (please mark with names); not exceeding 15 typewritten pages - references and tables can be added; double-spaced; typed text should not be smaller than Times 12 point; and in a form suitable for submission as an original paper to a scientific journal. Ethics committee approval is necessary for all animal studies as well as controlled clinical studies. **One original and five copies** of each paper in full - including illustrations - must reach the address below **not later than November 15, 1999**. Accordingly, articles sent by fax will not be accepted. Give complete address with telephone number and fax number. Winners will be informed mid-January, 2000.

One of the authors should be prepared, at his own expenses, to come to Adelaide, Australia, at the time of the meeting of the International Society for the Study of the Lumbar Spine, April 9-13, 2000, to present the paper and to receive the award.

The board of referees will be chaired by the undersigned and will contain members from the fields of clinical medicine, bioengineering, and biochemistry.

Please direct all correspondence to:

Professor Alf Nachemson
Department of Orthopaedics
Sahlgrenska University Hospital
S-413 45 Göteborg, Sweden

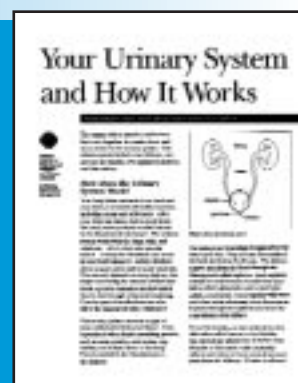
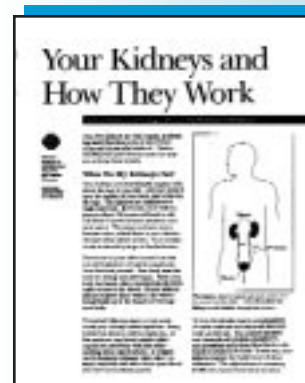
NKUDIC Releases New Fact Sheets on Kidneys and Urinary System

The National Kidney and Urologic Diseases Information Clearinghouse (NKUDIC) of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has published two new fact sheets describing the anatomy and normal function of the kidneys and urinary tract.

Your Kidneys and How They Work describes the signs and symptoms of kidney disease, standard tests for renal function, ways to preserve renal function, and treatments for end-stage renal disease.

Your Urinary System and How it Works explains how aging, illness, or injury can cause problems in the urinary system.

A single copy of each fact sheet is available free. Health care professionals may order a packet of 25 copies for \$5. The fact sheets are also available electronically through the internet. Health care professionals are welcome to insert



them into newsletters or duplicate them for their patients. NIDDK's patient information materials are a public service and are not copyrighted. The NIDDK health information page can be accessed at <http://www.niddk.nih.gov/health/health.htm>.

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Scientific Meetings and Congresses

June 19-22

American Diabetes Association's 59th Annual Scientific Sessions, San Diego, CA. *Information:* Bernadette Voelker, American Diabetes Association, 1600 Duke Street, Alexandria, VA 22314. Tel: 703-549-1500 (X3553) or 800-232-3472 (option 5); email: meetings@diabetes.org; Internet: <http://www.diabetes.org/am99>

June 20-22

Lake Cumberland Biological Transport Group 37th Annual Meeting, Jamestown, KY. *Information:* Ann Sherry, Molecular and Cellular Physiology, University of Cincinnati, PO Box 670576, Cincinnati, OH 45267. Tel: 513-558-3021; fax: 513-558-5738; email: ann.sherry@uc.edu; Internet: <http://iupucbio1.iupui.edu/cumberland>

June 24-28

XIV International Society for Arterial Chemoreception Meeting: "Oxygen Sensing: Molecule to Man," Philadelphia, PA. *Information:* Mary Pili, Department of Physiology, University of Pennsylvania Medical School, B400 Richards Bldg., 37th and Hamilton Walk, Philadelphia, PA 19104-6085. Tel: 215-898-9125; fax: 215-573-5851; email: pili@mail.med.upenn.edu.

June 25-28

Lysophospholipids and Eicosanoids in Cancer and in Cardiovascular and Neurodegenerative Diseases, New York City, NY. *Information:* Science and Technology Meetings Department, New York Academy of Sciences, 2 East 63rd Street, New York, NY 10021. Tel: 212-838-0230 (X324); fax: 212-838-5640; email: conference@nyas.org; Internet: <http://www.nyas.org>.

June 27-30

Pulmonary Circulation VII, Prague, Czech Republic.

Information: Vaclav Hampl, PhD, Department of Physiology, Charles University Second Medical School, Plzenska 130/221, 15000 Prague 5, Czech Republic. Tel: +4202-57210345; fax: +4202-57210995; Internet: <http://www.lf2.cuni.cz/departments/physiology/PCVII/index.htm>

June 30-July 4

Second Federation of European Physiological Societies (FEPS) Congress, Prague, Czech Republic. *Information:* Prague Congress Secretariat, Czech Medical Association, J. E. Purkyne, P. B. 88, Sokolska 31, 120 26 Prague 2, Czech Republic. Tel: +420-2-296889 or 297271; fax: +420-2-24216836 or 294610; e-mail: Ion@czechmed.anet.cz; Internet: <http://uemweb.biomed.cas.cz/FEPS99.htm>

July 7-8

International Conference on the Physiology and Psychology of Sport, Anchorage, Alaska. *Information:* Dr. Edgar F. Pierce, Jr., Department of Health and Sport Science, Robins Center, University of Richmond, Richmond, VA

23173. Tel: 804-289-8356; fax: 804-287-8820; email: epierce@richmond.edu; Internet: <http://www.urich.edu/~mcgowan/ed1.html>

July 9-14

Third Hypertension Summer School (American Heart Association), Boulder, CO. *Information:* Coordinator, Hypertension Summer School, Office of Professional Education, American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231-4596. Tel: 214-706-1441; email: scientificconferences@heart.org; Internet: <http://www.americanheart.org>

July 10-15

Neural Mechanisms in Cardiovascular Regulation (FASEB Summer Research Conference), Saxtons River, VT. *Information:* Adele Hewitt, FASEB Office of Scientific Meetings and Congresses, 9650 Rockville Pike, Bethesda, MD 20814-3998. Tel: 301-530-7010; fax: 301-571-0650; e-mail: ahewitt@faseb.org.

July 17-20

Advances in Medical Science Education. Learning Modes and Teaching Strategies (4th Annual Conference of the International Association of Medical Science Educators), Washington, DC. *Information:* Aviad Haramati, PhD, 1999 Conference Site Director, Georgetown University School of Medicine, Department of Physiology and Biophysics, 3900 Reservoir Road, NW, Washington, DC 20007. Tel: 202-687-1021; fax: 202-687-7407; email: haramata@gunet.georgetown.edu; Internet: <http://www.IAMSE.org/4bicmenu.htm>.

July 18-23

Pulmonary Pathophysiologic and Immune Consequences of Smokes Substance Abuse (FASEB Summer Research Conference), Copper Mountain, CO. *Information:* Adele Hewitt, FASEB Summer Research Conferences, 9650 Rockville Pike, Bethesda, MD 20814-3998. Tel: 301-530-7010; fax: 301-571-0650; e-mail: ahewitt@faseb.org.

July 25-30

Gastrointestinal Tract VIII (FASEB Summer Research Conference), Copper Mountain, CO. *Information:* Adele Hewitt, FASEB Office of Scientific Meetings and Congresses, 9650 Rockville Pike, Bethesda, MD 20814-3998. Tel: 301-530-7010; fax: 301-571-0650; e-mail: ahewitt@faseb.org.

July 30-August 2

A Comprehensive Review of Movement Disorders of the Clinical Practitioner, 9th Annual Course, Aspen, CO. *Information:* Center for Continuing Education, Columbia University College of Physicians and Surgeons at the Columbia-Presbyterian Medical Center, 630 West 168th Street, Unit 39, New York, NY 10031. Tel: 212-781-5990; fax: 212-781-6047; email: cme@columbia.edu; Internet: <http://cpmcnet.columbia.edu/dept/cme>.