

THE PHYSIOLOGIST



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Citation Statistics for the Individual Journals of *The American Journal of Physiology*

Brenda B. Rauner

The American Journal of Physiology (*AJP*), founded in 1898, publishes a wide range of articles addressing all aspects of the physiological sciences. The broad scope of the *AJP* was the reason why the Society decided in 1977 to sectionalize the Journal, publishing it in a consolidated form and also as individual journals devoted to discrete areas of physiology. The result has been a publication that fulfills the needs of individual investigators and institutional libraries. At present, there are eight journals within the *AJP*, including *AJP: Cell Physiology*; *AJP: Endocrinology and Metabolism*; *AJP: Gastrointestinal and Liver Physiology*; *AJP: Heart and Circulatory Physiology*; *AJP: Lung Cellular and Molecular Physiology*; *AJP: Regulatory, Integrative and Comparative Physiology*; *AJP: Renal, Fluid and Electrolyte Physiology*; and *AJP: Advances in Physiological Education*.

The decision to publish the individual *AJP* journals, as well as a consolidated version, has not diminished the stature of the *AJP* but has served to encourage submission of manuscripts. The number of research papers submitted to the *AJP* has increased from 1,113 in 1976 to 4,480 in 1994. Similarly, the number of articles published has increased from 447 to 2,454 over the same time period. The establishment of the individual journals has also helped to make the *AJP* more available to the scientific community because individual sections are more affordable than the consolidated journal; subscriptions to the individual sections have remained stable or increased each year. In addition, the publication of the indi-

vidual journals has provided a mechanism to increase the involvement of the physiological community in the *AJP* because of the increased opportunity to serve as editors, members of editorial boards, and reviewers for eight different publications.

Unfortunately, it has not been possible to assess the scientific impact of the individual journals through citations because the Institute for Scientific Information (ISI) does not track citation information for the individual journals. In general, authors cite articles from these journals by using the volume and page numbers of the consolidated *American Journal of Physiology*, and although ISI could have recognized and cited the individual journals by using the letter code attached to the page number, they have chosen not to do so for technical reasons. Instead, over the years, ISI has only provided the citation history for the consolidated *AJP*.

Table 1 provides a ranking of the top 14 physiology journals in 1993 based on the Impact Factor, a measure of the frequency of citation of an average article. The 1993 Impact Factor is based on the citations of a journal in papers published in 1992 and 1991 divided by the total number of papers published by the journal in those two years. The *American Journal of Physiology* was ranked 8th among 55 physiology journals with an Impact Factor of 3.139. The top-ranking physiology journal was the Society's *Physiological Reviews* (*PRV*), with an Impact Factor of 14.016. For the other Society journals, the *Journal of Neurophysiology* (*JN*) ranked 6th, *News in Physiological Sciences* (*NIPS*) ranked 13th, and the *Journal of Applied Physiology* (*JAP*) ranked 14th.

The Publications Committee, Editors-in-Chief, and Council were all concerned with our inability to obtain citation statistics of the individual journals. Therefore the Publications Committee decided to commission ISI to provide us with this information. Even though the Impact Factors were not obtained because of the study design, the analysis did provide the Society with some very useful citation statistics.

Inside . . .

An Open Letter to Members.....	83
ACDP 1994 Survey Results	85
APS-Genentech Award	92
APS Conference: New Discoveries Within the Pancreatic Polypeptide Family: Molecules to Medicine.....	97

(continued on p. 84)

CONTENTS

PUBLICATIONS

Citation Statistics for the Individual Journals of <i>AJP</i>	81
---	----

AN OPEN LETTER TO MEMBERS

B. R. Duling	83
Urge Congress to Support Unrestricted NIH Funding	83

ACDP STATISTICS

Association of Chairmen of Departments of Physiology 1994 Survey Results	
C. Smith	85

APS NEWS

Awards and Fellowships

Research Career Enhancement Awards	92
APS-Genentech Award	92

Committees

1995 Officers and Standing Committees	93
---------------------------------------	----

Conferences

APS Conference: New Discoveries Within the Pancreatic Polypeptide Family: Molecules to Medicine	97
---	----

Membership

Membership Statistics	98
News From Senior Physiologists	99
Te-Pei Feng (1907-1995)	102
Emil Bozler (1901-1995)	103

PUBLIC AFFAIRS

Tobacco Health Tax Bill Introduced	104
------------------------------------	-----

BOOK REVIEWS

BOOKS RECEIVED

PEOPLE AND PLACES

Ernst Knobil Symposium	109
------------------------	-----

POSITIONS AVAILABLE

ANNOUNCEMENTS

APS CONFERENCE

General Information	iii
Program	iv
Table of Contents	A-1
Abstracts	A-11
Author Index	A-33

G. Edgar Folk, Jr., Senior Physiologist Fund

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 might be used for such purposes as attending an APS meeting to present a paper, engaging in a series of modest experiments, or completing a manuscript (paying for typists or perhaps page charges). Recipients will be selected with the assistance of the Senior Physiologists Committee throughout the year. Names of awardees will not be made public. Mary Folk writes that the purpose of the fund is for the Senior Physiologists Committee "to have fun assisting colleagues and for Emeritus APS members to keep in closer touch with APS."

Inquiries concerning the G. Edgar Folk, Jr., Senior Physiologist Fund should be made to Martin Frank, Executive Director, APS.

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Deadline for submission of material for publication: Jan. 1, February issue; March 1, April issue; May 1, June issue; July 1, August issue; Sept. 1, October issue; Nov. 1, December issue. **If you change your address or telephone number, please notify the central office as soon as possible. Printed in the USA.**

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An Open Letter to Members

On March 23-24, 1995, Martin Frank, our Executive Director; Alice Hellerstein, our head of Public Affairs; and I visited five congressional offices at the height of the house debates on the Contract With America and on the day of the vote on welfare reform. I made this visit with some trepidation, both because I had heard rumors of impending doom in the form of major cuts in the NIH budget and because I had begun to sense a feeling of negativism or distrust of the biomedical research community on the part of the members of Congress.



We met with representatives of Congressmen Wicker, Dickey, Payne, and Bliley and of Senator Warner. Our conversations were wide ranging but of course focused on the general climate of funding for NIH. As would be expected, Republican congressmen expressed enormous enthusiasm for reducing the federal budget and for a reduction in congressional micromanagement of the lives and professional activities of our citizens. The latter interest is one that has been emphasized in comments on the Republican Congress and for me has implications as a positive influence for future funding patterns, as it may reflect a growing recognition by Congress that specific operational plans regarding scientific matters are best made by scientists rather than by congressmen. To the extent that this in fact represents a commonly held view, we may anticipate greater input of NIH institutes, councils, and peer review panels into the establishment of scientific priorities than might have been the case in the past.

We also discussed a variety of issues regarding scientific funding. I am pleased to report an enormous enthusiasm from both houses for biomedical research in general and for the NIH in particular. Having said that, I was impressed by the fact that Congress is in a mood that demands a reduction in

the federal budget, and the members at least expect, and some demand, our help or acquiescence in the process. A budget reduction will require that hard decisions be made, and some programs will be dropped while others are retained. At the risk of being inflammatory, let me suggest that it may be time for scientists to begin to help make these decisions on scientific grounds. I don't think we should carry these suggestions directly to Congress, but rather we should operate through the FASEB and through the Director's Offices of the NIH or NSF.

So far, our community has been exceedingly reluctant to make comments on the value of one scientific program versus another. One of the most significant threads running through my conversations with the people in Congress was that they are ready to hear where cuts can be made and in fact, in at least one case, the Congressman was offended at the reluctance of scientists to "point fingers and name names" and thereby assist in the tough job of cost containment and reduction.

If we try to undertake such an effort as individuals, we run the risk of "witch-hunting" and "setting brother against brother." However, if we recognize that the national budget will be reduced, programs will be cut, and scientific activities will be curtailed, then we in the scientific community must initiate a dialogue that will allow us, over the next several months to few years, to make rational recommendations as to how such cuts might be implemented. The Executive Director of APS, the Public Affairs Committee, and I all solicit your comments and inputs on how we might better relate to Congress and communicate our feelings as a unified body through the FASEB.

Brian R. Duling
President

Urge Congress to Support Unrestricted NIH Funding

With Congress already starting to make decisions about budgets for the next fiscal year, all APS members should write to their Representatives and Senators asking them to give the highest priority to the NIH.

Write to your Representative at the US House of Representatives, Washington, DC 20515. Write to Senators at the US Senate, Washington, DC 20510. Urge them to invest heavily in the NIH because it conducts life-saving research and trains young doctors and scientists who will be able to continue this work into the next century. Urge them also to give NIH flexibility to determine what are the best scientific opportunities most likely to lead to breakthroughs and to avoid requiring disease-specific spending by the Institutes.

CITATION STATISTICS

TABLE 1. ISI/SCIENCE/JCR/1993 Impact Factor Ranking of First 14 Journals in List of 55 Physiology Journals

Journal	Impact Factor	Journal	Impact Factor
1. <i>Physiol. Rev.</i> *	14.010	8. <i>Am. J. Physiol.</i> *	3.319
2. <i>Annu. Rev. Physiol.</i>	11.568	9. <i>J. Cell. Physiol.</i>	2.858
3. <i>J. Physiol. Lond.</i>	4.795	10. <i>Chem. Senses</i>	2.800
4. <i>Rev. Physiol.</i>	4.421	11. <i>Pluegers Arch.</i>	2.710
5. <i>J. Vasc. Res.</i>	4.324	12. <i>Psychophysiol.</i>	2.349
6. <i>J. Neurophys.</i> *	4.134	13. <i>News Physiol. Sci.</i> *	2.016
7. <i>J. Gen. Physiol.</i>	4.078	14. <i>J. Appl. Physiol.</i> *	1.799

* A journal of the American Physiological Society

The study determined the number of times an individual *AJP* journal was cited in the ISI database of approximately 4,500 biomedical journals over a period from 1987 to 1993. The analysis also provided the number of cited and uncited articles and the mean of all articles cited. The study also provided five-year moving windows that show the trend of citations. This is particularly interesting for a new journal such as the *AJP: Lung Cellular and Molecular Physiology*, whose citations increased as follows: 110 (1988-1990), 633 (1989-1991), 1,374 (1990-1992), and 1,533 (1991-1993).

The study enabled us to compare the individual *AJP* journals, excluding *Advances in Physiology Education*, with each other (Table 2). For the *American Journals of Physiology*, the *AJP: Renal, Fluid and Electrolyte Physiology* section has the

largest mean citation score of 10.00 over the seven-year cumulative period. *AJP: Cell Physiology* ranks second with a mean citation score of 8.59.

The study also enabled us to compare the *AJP* journals with "competing" journals identified by our editors (Table 3). Certainly, citation statistics alone are not the only measure of the status of a journal, but they are of assistance in our efforts to evaluate the individual components of *AJP*. Comparison of our mean citation scores shows that the *AJP* individual journals are very competitive. There is always a need for the Society to continue strengthening its efforts to improve the quality of all its journals. Future analyses performed by ISI on behalf of the Society should provide one indication of the success of our efforts.

TABLE 2. Cumulative Citation Statistics for *AJP* Journals 1987-1993

Journal	Citations	Articles	Mean
<i>AJP: Renal, Fluid Electrolyte Physiol.</i>	20,392	2,040	10.00
<i>AJP: Cell Physiol.</i>	17,335	2,019	8.59
<i>AJP: Heart Circ. Physiol.</i>	27,156	3,384	8.02
<i>AJP: Endocrinol. Metab.</i>	12,697	1,804	7.04
<i>AJP: Gastrointest. Liver Physiol.</i>	12,869	1,923	6.69
<i>AJP: Regulatory, Integrative Comp. Physiol.</i>	14,848	2,558	5.49
<i>AJP: Lung Cell. Mol. Physiol.</i>	2,816*	642	4.39

*Founded August 1988

TABLE 3. Cumulative Citation Statistics for Journals That Compete With *AJP* 1987-1993

Journal	No. Citations	Articles	Mean
<i>Journal of Biological Chemistry</i>	450,457	24,258	18.57
<i>Circulation Research</i>	34,822	2,070	16.82
<i>Endocrinology</i>	74,420	5,901	12.61
<i>Journal of General Physiology</i>	10,359	1,194	8.99
<i>Diabetes</i>	25,913	3,017	8.59
<i>Journal of Physiology London</i>	54,663	9,800	5.38
<i>Journal of Experimental Biology</i>	8,330	1,596	5.22
<i>Experimental Lung Research</i>	2,015	416	4.84
<i>American Journal of Kidney Disease</i>	6,647	1,775	3.74
<i>Cardiovascular Research</i>	4,798	1,271	3.77
<i>Gastroenterology</i>	45,159	13,209	3.42
<i>Gut</i>	19,039	5,580	3.41
<i>Kidney International</i>	31,442	12,815	2.45

Association of Chairmen of Departments of Physiology 1994 Survey Results

Charlene Smith

Department of Physiology, University of Oklahoma Health Sciences Center

The Association of Chairmen of Departments of Physiology annual survey was mailed to 162 physiology departments throughout the United States, Canada, Mexico, and Puerto Rico. A total of 101 surveys was received for a response rate of 62%. This rate is 6% higher than for 1993 (56%). Although results based on 101 responses are not statistically valid, they will provide the reader with general trends about faculty salary, overall departmental budgets, and space allocations for research.

Faculty salary information (Tables 1-3) is derived from the total compensation column, which includes supplementary income but not fringe benefits. Information was not included in the calculations for any faculty whose salary was not supported at least 50% by the respondent's department.

Most of the statistics are based on 101 responses, but salary results are calculated on the number of respondents providing complete information (101 for total, 96 for Chair-

TABLE 1. Faculty Salaries for Fiscal Year 1994

	Mean	Change From Previous Survey	Minimum	Maximum	No. of Faculty
Chairmen					
All schools	\$124,973	2.4	\$40,500	\$222,000	96
Medical public	124,260	5.8	58,131	192,000	62
Medical private	128,347	-3.3	40,500	222,000	24
Nonmedical	121,294	6.4	70,132	194,500	10
Female	94,987	12.3	85,000	102,800	3
Professors					
All schools	87,589	3.6	20,000	195,000	615
Medical public	84,823	4.1	32,500	195,000	444
Medical private	97,940	4.4	20,000	168,950	117
Nonmedical	87,904	8.0	49,373	135,576	54
Female	82,473	2.4	33,168	144,000	64
Associate Professors					
All schools	63,848	4.4	27,000	115,000	382
Medical public	63,274	5.8	27,000	100,002	247
Medical private	66,749	5.6	32,000	115,000	94
Nonmedical	60,660	-3.1	30,000	83,257	41
Female	63,885	3.8	32,000	99,302	69
Assistant Professors					
All schools	50,999	7.6	21,200	102,280	288
Medical public	50,381	9.1	21,200	102,280	171
Medical private	50,975	3.4	24,000	85,000	83
Nonmedical	54,160	16.9	42,762	61,650	34
Female	51,097	7.2	25,926	93,632	82
Instructors					
All schools	30,551	-14.4	12,000	45,000	36
Medical public	29,177	-19.8	12,000	42,468	30
Medical private	36,880	7.0	33,000	39,518	4
Nonmedical	38,507	48.1	32,013	45,000	2
Female	30,912	1.9	19,190	45,000	16

ACDP 1994 SURVEY RESULTS

men). Inconsistent data were eliminated in an attempt to achieve accurate results within each category. In addition to salary information, further data are provided on tenure, gender, ethnicity, and salary by number of years in rank. Table 3 reflects salaries by rank and region.

Student/trainee information is provided for predoctoral and postdoctoral categories, including ethnicity, completions, stipends provided, and type of support.

Department budget information (Table 4) is provided by type of support, faculty salaries derived from grants, negotiated indirect cost rates, and percent of returned direct cost. Space averages are presented by research, administration, teaching, and other.

Table 5 ranks responding institutions according to total budget dollars, research grant income, research dollars per faculty, research space, and research dollars per square foot of research space.

TABLE 2. Average Salary by Number of Years in Rank

Chairpersons			Professors			Associate Professors			Assistant Professors			Instructors		
Years	Salary	No. of Faculty	Years	Salary	No. of Faculty	Years	Salary	No. of Faculty	Years	Salary	No. of Faculty	Years	Salary	No. of Faculty
0-5	\$115,660	33	0-5	\$79,534	207	0-5	\$62,996	208	0-5	\$51,019	255	0-5	\$30,829	31
6-10	128,537	30	6-10	87,931	145	6-10	62,836	70	6-10	51,306	28	6-10	25,063	3
11-15	134,317	17	11-15	93,092	98	11-15	67,876	47	11-15	48,029	2	11-15	0	0
16-20	124,732	9	16-20	96,008	87	16-20	64,616	34	16-20	39,000	1	16-20	0	0
21-25	131,222	7	21-25	90,027	55	21-25	64,219	13	21-25	47,900	1	21-25	32,960	1
26+	0	0	26+	96,804	23	26+	66,645	10	26+	58,200	1	26+	36,000	1

Type of Institution (*n* = 101)

Support		Teaching Interactions			
Public	70	MD/DO	88	Pharmacy	22
Private	31	DDS	25	Other Biomedical	49
		DVM	8	Life Science	41
		Allied Health	5	Bioengineering	26

Faculty Summary (*n* = 1,387)

	Male	Female
American Indian/Alaskan Native	1	1
Asian/Pacific Islander	81	19
Black, not Hispanic origin	10	6
Hispanic	31	6
White, not of Hispanic origin	996	194
Foreign National	37	5

Tenure status in each department by degree (*n* = 1,414)

	Tenured	Not Tenured	Not Eligible	Total
MD	60	8	7	75
PhD	867	254	132	1,253
Both	42	14	5	61
Other	11	3	11	25

Predoctoral Trainee Completions

Number of trainees who have completed doctoral work during the year ended June 30, 1994 (*n* = 61)

Predoctoral male	116	Predoctoral female	85
US citizen/resident aliens			
		Male	Female
American Indian/Alaskan Native		0	1
Asian or Pacific Islander		11	11
Black, not of Hispanic origin		3	2
Hispanic		3	2
White, not of Hispanic origin		55	39
Foreign nationals			
African		0	0
Asian or Pacific Islander		19	16
Central or South American		5	1
European, Canadian, Australian		19	12
Middle Eastern		1	1
Other		0	0

Space Controlled by Department (*n* = 99)

Research	14,908
Administration	2,392
Teaching	1,820
Other	2,157
Total space	21,277

Student/Trainee Summary

Total number of pre- and postdoctoral students/trainees			
Predoctoral male	941	Postdoctoral male	579
Predoctoral female	659	Postdoctoral female	275
Total number of foreign pre- and postdoctoral students/trainees			
Predoctoral male	363	Postdoctoral male	313
Predoctoral female	214	Postdoctoral female	119

Number of foreign pre- and postdoctoral students/trainees

	Predoctoral Male	Predoctoral Female	Postdoctoral Male	Postdoctoral Female
African	12	3	10	4
Asian/Pacific Islander	222	122	170	46
Central and South American	13	8	11	10
European, Canadian, Australian	84	69	95	49
Middle Eastern	29	8	16	7
Other	3	4	11	3

Number of foreign pre- or postdoctoral trainees whose primary source of support is

	Predoctoral	Postdoctoral
Institutional	193	125
Research grants	436	175
Private foundations	39	18
Home (foreign) governments	35	20
Other	35	9

Ethnicity of each pre- and postdoctoral student/trainee

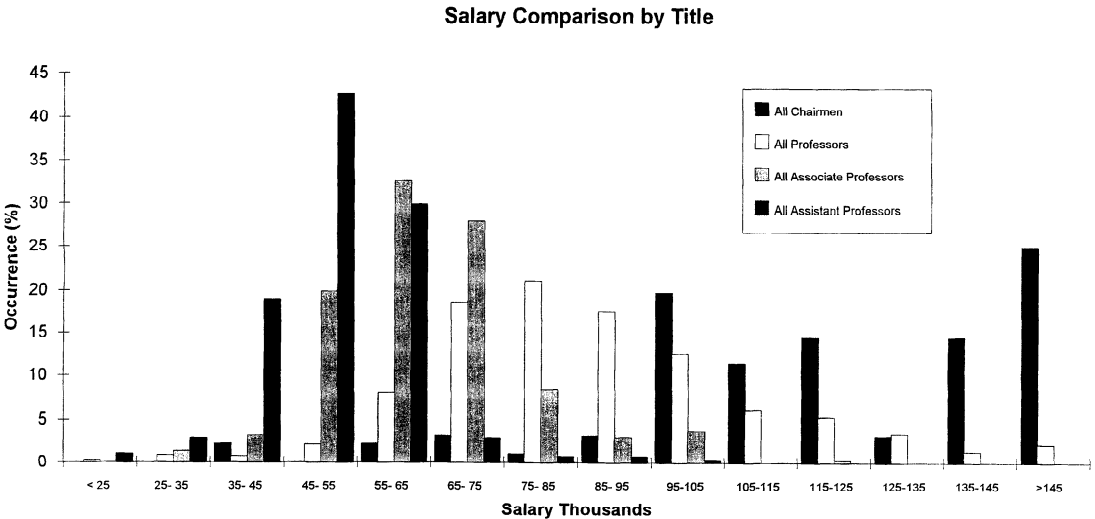
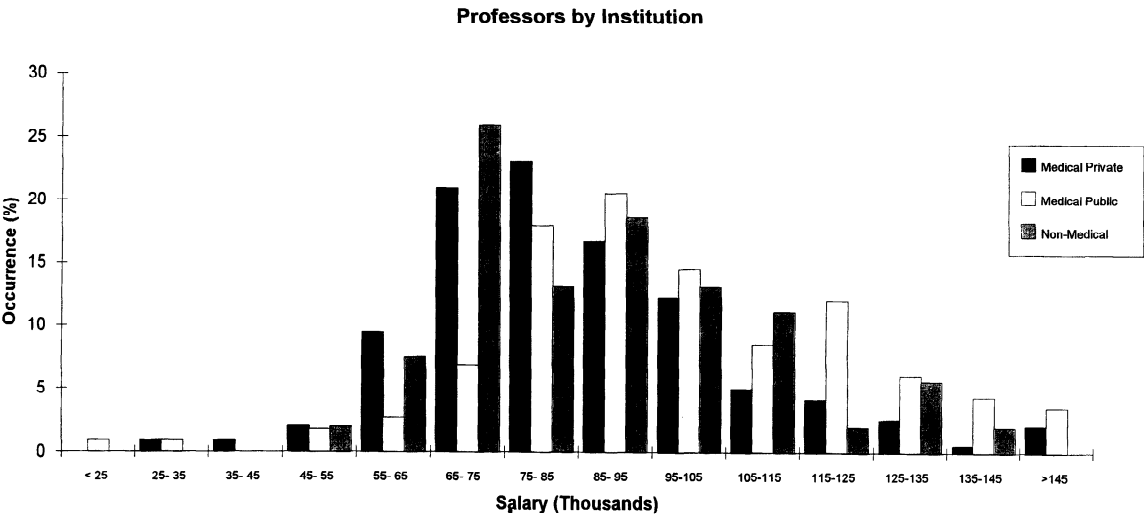
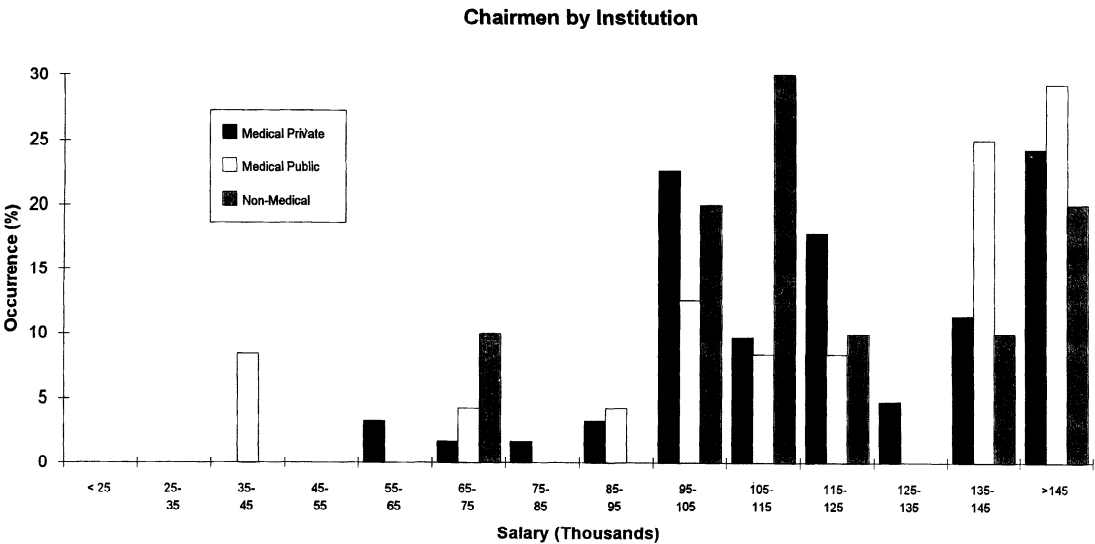
	Predoctoral		Postdoctoral	
	Male	Female	Male	Female
American Indian/Alaskan Native	11	4	6	2
Asian/Pacific Islander	64	40	40	26
Black, not of Hispanic origin	26	27	9	4
Hispanic	20	26	7	5
White, not of Hispanic origin	457	348	204	119

Average annual starting stipend (in US dollars) for trainees

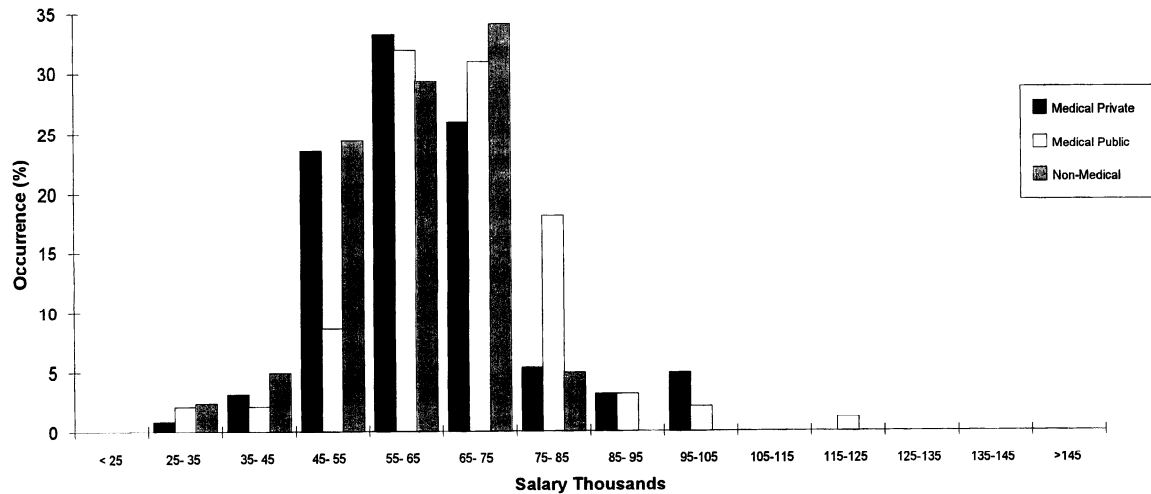
Predoctoral (n = 87)	Postdoctoral (n = 83)
\$12,508.55	\$24,337.04

TABLE 3. Salaries by Region

	Mean	Minimum	Maximum	No.	
Chairpersons					
Northeast	\$134,026	\$85,000	\$191,671	21	Northeast: ME NH VT NY MA RI CT NJ PA MD DE DC
Midwest	122,719	70,132	194,500	25	
South	132,484	58,131	222,000	32	
West	123,896	97,647	168,600	11	
Canada/Puerto Rico	73,221	40,500	103,553	7	
Professors					
Northeast	98,199	53,000	168,950	121	Midwest: MI OH IN IL WI IA MO KS NE ND SD MN
Midwest	83,830	33,765	159,984	148	
South	85,402	20,000	171,570	219	
West	91,296	32,700	195,000	82	
Canada/Puerto Rico	75,312	46,452	110,933	45	
Associate Professors					
Northeast	71,051	27,000	115,000	88	South: VA WV KY TN NC SC GA FL AL MS AR LA OK TX
Midwest	62,666	33,595	95,000	112	
South	60,418	30,000	95,621	140	
West	67,125	43,332	100,002	28	
Canada/Puerto Rico	55,780	32,000	73,158	14	
Assistant Professors					
Northeast	52,661	21,200	74,200	58	West: AK HI MT WY CO NM AZ ID NM WA OR CA UT
Midwest	51,710	24,000	62,635	82	
South	50,735	23,920	102,280	95	
West	51,099	30,000	93,632	36	
Canada/Puerto Rico	43,153	25,926	61,650	17	
Instructors					
Northeast	34,173	30,000	39,518	3	
Midwest	33,240	28,000	36,000	4	
South	29,806	12,000	42,468	22	
West	35,793	31,167	45,000	4	
Canada/Puerto Rico	21,824	20,536	22,468	3	



Associate Professors by Institution



Assistant Professors by Institution

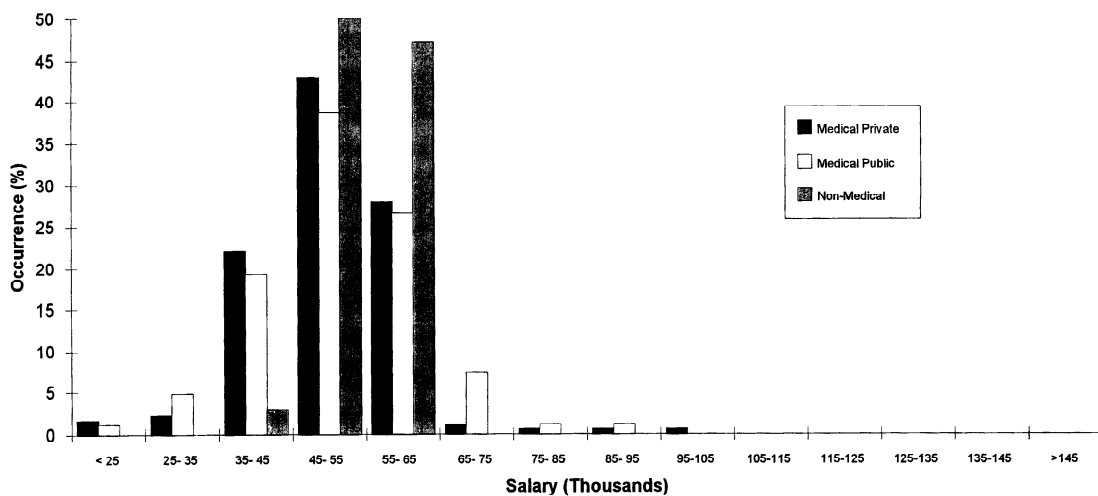


Table 4. Budgets by Institutions

	All Institutions	No.	Public Medical	No.	Private Medical	No.	Nonmedical	No.
Institutional	\$1,205,269	99	\$1,238,795	63	\$1,117,291	26	\$1,222,802	10
Outside research grants (direct costs only)	1,918,084	96	1,909,020	62	1,849,928	24	2,137,858	10
Training grants (direct costs only)	257,617	42	201,707	25	339,710	8	339,951	9
Endowments	140,978	36	184,517	24	62,482	7	41,885	5
Indirect recovery costs (amount to dept.)	103,166	35	109,830	45	65,350	5	81,012	5
Other budget support	216,306	57	251,791	36	203,248	15	36,038	6
Average	3,407,641	99	3,490,179	63	3,076,090	26	3,749,687	10
Standard deviation	2,020,399		1,905,023		2,230,300		2,042,000	

Financial Information

Percent of total faculty salaries derived from research grants (not including fringe benefit amounts):	28.6%	(n=75)
Current fringe benefit rate most frequently used for primary faculty:	25.0%	(n=97)
For faculty salaries raised from grants, etc., percentage of allocated salary dollars directly returned to your department:	76.1%	(n=56)
Federally negotiated indirect cost rate for FY 93-94 on campus:	51.2%	(n=90)
off campus:	26.4%	(n=60)
Percentage of indirect costs returned to your department:	17.8%	(n=48)

ACDP 1994 SURVEY RESULTS

Table 5. Complete Ranking According to Total Dollars

Rank Total Dollars	Total Dollars	Rank Research Grant Dollars	Research Grant Dollars	Rank Research Dollars/ Faculty	Research Dollars/ Faculty	Rank Total Research Space	Research Space (sq.ft.)	Rank Research Dollars/ sq. ft.	Research Dollars/ sq. ft.	No. Faculty
1	\$9,198,000	1	\$6,900,000	1	\$287,500	7	35,000	14	\$197	11
2	7,743,645	3	5,364,873	18	191,603	36	19,916	3	269	29
3	7,666,060	8	4,006,222	16	200,311	3	32,665	41	123	20
4	7,364,029	4	5,033,484	8	251,674	23	21,740	8	232	20
5	6,980,837	30	2,409,831	41	120,492	51	13,620	20	177	20
6	6,979,346	5	4,485,195	4	280,325	37	17,479	5	257	16
7	6,927,399	3	5,202,368	5	260,118	10	29,072	19	179	20
8	6,461,728	7	4,184,022	15	209,201	5	31,266	33	134	20
9	6,433,627	17	2,952,775	23	155,409	22	21,807	30	135	19
10	6,427,297	6	4,343,407	22	160,867	16	23,000	15	189	27
11	6,113,132	25	2,635,287	24	155,017	29	19,700	32	134	17
12	5,881,000	14	3,250,000	25	154,762	1	35,726	62	91	21
13	5,814,745	20	2,855,571	34	129,799	46	15,057	13	190	22
14	5,804,952	38	2,207,629	39	122,646	13	25,788	66	86	18
15	5,698,988	10	3,644,642	3	280,357	45	15,415	7	236	13
16	5,440,000	12	3,400,000	1	309,091	34	18,000	14	189	11
17	5,414,929	9	3,872,544	7	258,170	21	22,000	21	176	15
18	5,203,670	15	3,010,642	21	177,097	60	11,301	4	266	17
19	5,120,269	27	2,519,001	42	119,952	14	23,824	51	106	21
20	5,070,000	21	2,844,000	98	0	20	22,000	37	129	0
21	5,042,864	33	2,311,520	30	135,972	11	27,064	67	85	17
22	5,018,000	11	3,405,000	14	212,813	12	27,050	40	126	16
23	5,009,724	18	2,936,495	19	183,531	17	22,935	39	128	16
24	4,997,022	22	2,781,915	36	126,451	24	21,540	35	129	22
25	4,856,195	23	2,739,648	44	119,115	15	23,261	44	118	23
26	4,742,261	13	3,253,158	33	130,126	9	29,872	48	109	25
27	4,652,717	31	2,371,016	53	98,792	41	16,347	27	145	24
28	4,644,010	32	2,312,704	27	144,544	27	19,933	45	116	16
29	4,593,180	52	1,641,834	75	65,673	6	30,375	86	54	25
30	4,532,723	16	3,000,000	26	150,000	7	30,037	57	100	20
31	4,371,858	35	2,282,442	51	103,747	4	32,541	80	70	22
32	4,351,517	28	2,482,260	10	225,660	55	12,503	11	199	11
33	4,298,572	19	2,875,872	52	102,710	31	18,941	25	152	28
34	4,242,000	39	2,200,000	61	84,615	25	21,309	53	103	26
35	4,241,576	24	2,700,317	31	135,016	36	17,534	24	154	20
36	4,198,539	34	2,286,627	76	65,332	19	22,530	56	101	35
37	4,163,776	26	2,621,061	37	124,812	49	14,380	17	182	21
38	4,058,115	42	2,102,442	48	110,655	48	14,587	29	144	19
39	3,993,188	37	2,222,758	32	130,750	38	17,233	36	129	17
40	3,949,033	47	1,869,746	58	93,487	33	18,249	54	102	20
41	3,873,811	36	2,240,570	11	224,057	63	10,209	10	219	10
42	3,780,000	48	1,860,000	28	143,077	53	12,948	28	144	13
43	3,649,706	29	2,413,178	12	219,380	43	15,679	23	154	11
44	3,647,144	60	1,285,468	78	61,213	40	16,396	76	78	21
45	3,494,579	41	2,176,535	57	94,632	32	18,512	43	118	23
46	3,484,143	55	1,553,179	56	97,074	8	29,952	87	52	16
47	3,447,919	43	2,070,074	6	258,759	69	9,076	9	228	8
48	3,332,078	45	2,002,084	68	77,003	18	22,861	63	88	26
49	3,229,279	44	2,049,273	40	120,545	59	11,378	18	180	17
50	3,208,000	53	1,600,000	46	114,286	26	21,000	77	76	14
51	3,207,078	54	1,567,252	55	97,953	39	16,845	61	93	16
52	3,159,467	46	1,871,026	38	124,735	81	7,553	6	248	15
53	2,881,083	64	1,098,501	65	78,464	35	18,000	84	61	14
54	2,855,326	63	1,178,500	71	69,324	61	10,503	46	112	17

ACDP 1994 SURVEY RESULTS

Table 5 (continued). Complete Ranking According to Total Dollars

Rank Total Dollars	Total Dollars	Rank Research Grant Dollars	Research Grant Dollars	Rank Research Dollars/ Faculty	Research Dollars/ Faculty	Rank Total Research Space	Research Space (sq.ft.)	Rank Research Dollars/ sq. ft.	Research Dollars/ sq. ft.	No. Faculty
55	2,812,514	49	1,806,789	29	138,984	85	6,565	2	275	13
56	2,777,197	40	2,187,469	9	243,052	80	7,800	1	280	9
57	2,697,266	58	1,417,997	35	128,909	47	14,881	60	95	11
58	2,650,514	57	1,481,206	47	113,939	70	8,703	22	170	13
59	2,603,816	66	1,071,960	81	53,598	50	14,199	78	75	20
60	2,603,806	50	1,792,321	17	199,147	52	13,316	31	135	9
61	2,559,177	59	1,300,000	49	108,333	71	8,662	26	150	12
62	2,406,583	61	1,281,717	45	116,520	54	12,640	55	101	11
63	2,405,825	56	1,500,000	13	214,286	57	11,578	34	130	7
64	2,302,650	62	1,274,338	54	98,026	44	15,563	72	82	13
65	2,289,865	51	1,652,608	60	86,979	30	18,971	64	87	19
66	2,240,529	76	692,314	0	57,693	75	8,402	71	82	12
67	2,177,925	68	984,527	70	70,323	62	10,257	59	96	14
68	2,128,149	67	1,002,454	59	91,132	56	12,000	68	84	11
69	2,127,302	77	655,420	87	25,208	77	8,131	73	81	26
70	2,073,994	65	1,081,215	74	67,576	64	9,809	47	110	16
71	2,026,500	70	921,407	62	83,764	72	8,602	50	107	11
72	1,897,719	80	606,332	82	50,528	74	8,459	79	72	12
73	1,837,120	81	575,000	83	44,231	67	9,131	83	63	13
74	1,826,578	84	354,612	86	27,278	58	11,460	92	31	13
75	1,572,109	74	757,207	73	68,837	66	9,567	75	79	11
76	1,531,614	82	553,351	72	69,169	84	6,700	69	83	8
77	1,475,656	75	730,184	63	81,132	83	6,947	52	105	9
78	1,472,186	73	808,583	79	57,756	76	8,350	58	97	14
79	1,464,465	72	838,320	43	119,760	65	9,676	65	87	7
80	1,438,644	71	887,899	20	177,580	90	4,702	16	189	5
81	1,432,357	69	963,928	64	80,327	42	15,762	85	61	12
82	1,411,591	91	159,419	95	4,555	78	8,000	94	20	35
83	1,408,837	78	639,016	50	106,503	88	5,842	49	109	6
84	1,389,959	79	621,395	66	77,674	68	9,112	81	68	8
85	1,115,084	83	540,305	67	77,186	91	4,190	38	129	7
86	1,030,859	88	245,665	90	20,472	92	3,799	82	65	12
87	912,213	7	256,000	88	23,273	82	7,450	90	34	11
88	896,251	90	185,050	85	30,842	73	8,483	93	22	6
89	888,917	93	99,101	92	14,157	89	5,222	95	19	7
90	832,000	99	0	99	0	79	8,000	99	0	10
91	820,433	85	310,000	77	62,000	94	3,741	70	83	5
92	805,000	86	300,000	69	75,000	87	6,000	88	50	4
93	592,851	94	70,000	93	14,000	97	1,950	89	36	5
94	498,734	98	0	97	0	93	3,760	98	0	6
95	427,603	96	48,565	94	9,713	95	3,527	96	14	5
96	363,426	92	146,346	84	36,587	98	1,200	42	122	4
97	271,800	89	199,167	91	19,917	86	6,191	91	32	10
98	264,800	95	65,000	89	21,667	99	800	74	81	3
99	60,000	101	0	101	0	96	3,000	101	0	3
100	0	97	0	96	0	100	0	97	0	19
101	0	100	0	100	0	101	0	100	0	0

Awards and Fellowships

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

The Awards can be used to support

- short-term visits to other laboratories to acquire new scientific skills
- attendance at special courses devoted primarily to methodologies appropriate for both new investigators and more senior investigators entering a new field of research.

Application Procedure: Candidates, who are members in good standing, may

submit an application form including a curriculum vitae, justification for requesting an award, description of enhancement activity and current research program (not to exceed 2 pages), and anticipated budget for the proposed program of enhancement. The applicant must also include a letter of support either from his/her department chair, host laboratory, or other appropriate individual.

Application Deadlines: February 15 and August 15.

Additional Information and Application Material: Dr. Martin Frank, Executive Director, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991. Tel: 301-530-7118; fax: 301-571-8305.

APS Research Career Enhancement Awards

The American Physiological Society, in collaboration with Genentech, Inc., is pleased to announce the creation of a new fellowship program designed to promote careers in mammalian organ system physiology. The **APS-Genentech Postdoctoral Fellowship** has been established in recognition of the fact that many advances in cell and molecular biology will ultimately require an understanding in the context of the organism, and special training will be needed to conduct this type of research.

The ideal candidate is one who did an outstanding job in a top-flight graduate program (e.g., physiology, pharmacology, molecular biology, genetics, etc.) and who has the intention of enlarging or learning organ system approaches during their postdoctoral training. Alternatively, a well-trained graduate in integrative physiology might wish to expand their work through the use of molecular biological tools. A central criterion is that the postdoctoral project uses the tools of cellular and molecular biology in the setting of the whole animal.

Candidates for this program should identify a laboratory and sponsor under whose supervision a project in mammalian organ system physiology and molecular biology can be combined. The award is for a two-

year period and includes an annual stipend (\$32,000) and a trainee allowance of \$3,500.

Application Procedure: Candidates should submit an application form including information about both the candidate's proposed research plan and the sponsor's research program. The application should also include a statement of how the proposed training program will promote a career in mammalian organ system physiology. Candidates should include their curriculum vitae and that of their postdoctoral research sponsor and a listing of their research support. The applicant must also include letters of support either from his/her department chair or predoctoral research advisor, from the sponsor of the proposed postdoctoral research program, and up to two others from individuals familiar with the applicant's work. Please submit the original application and seven copies of all application materials.

Application Deadline: October 2, 1995.

Additional Information and Application Materials: Dr. Martin Frank, APS-Genentech Postdoctoral Fellowship Program, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991.

APS-Genentech Postdoctoral Fellowship in Mammalian Organ System Physiology

Committees

1995 Officers and Standing Committees

APS Council

Officers

Leonard S. Jefferson, President (1996)
James A. Schafer, President-Elect (1996)
Brian R. Duling, Past President (1996)

Councillors

Walter F. Boron (1998)
Gerald F. DiBona (1998)
D. Neil Granger (1996)
Barbara A. Horwitz (1996)
Diana L. Kunze (1997)
Heinz Valtin (1997)

ex officio members

Franklyn G. Knox, Finance (1995)
Leonard R. Johnson, Publications (1995)
Francis L. Belloni, Education (1997)
Richard J. Traystman, Section Advisory (1996)
Ethan R. Nadel, Program (1997)

Jackie D. Wood (1997)
David P. Brooks, *ex officio* (1995)
Eric O. Feigl, *ex officio* (1997)

Career Opportunities in Physiology

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

Stephen L. Bealer, Chair (1997)
R. Allan Buchholz (1995)
Michael A. Castellini (1996)
Joey Granger (1995)
Polly A. Hofmann (1997)
Ulla C. Kopp (1996)
Edward J. Zambraski (1997)

Committee on Committees

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

Mordecai P. Blaustein, Chair (1995)
Barbara A. Horwitz (1996)
David C. Dawson (1995)
Suzanne M. Fortney (1997)
Ronald H. Freeman (1995)
Pamela J. Gunter-Smith (1997)
David R. Harder (1997)
Eileen M. Hassler (1996)
Jeffrey R. Hazel (1997)
Ralph Lydic (1996)
Joel A. Michael (1995)
Lynne E. Olson (1995)
David W. Ploth (1996)
Gerald I. Shulman (1996)

Ray G. Daggs Award

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

X. J. Musacchia, Chair (1995)
Robert E. Forster II (1996)
William F. Ganong (1997)

Education

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

Francis L. Belloni, Chair (1997)
Beverly P. Bishop (1996)
Herbert S. Chase (1997)
Stephen E. DiCarlo (1997)
Andrea R. Gwosdow (1996)
Aviad Haramati (1995)
Barry T. Peterson (1996)
Norman W. Weisbrodt (1995)
Roger E. Thies, *ex officio* (1996)
Penny Hansen, *ex officio* (1995)

Society Standing Committees

Animal Care and Experimentation

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

Jeffrey L. Osborn, Chair (1997)
C. Terrance Hawk (1997)
Gordon Leitch (1996)
Thomas V. Peterson (1995)
David C. Randall (1996)

Finance

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

Franklyn G. Knox, Chair (1995)
Edward H. Blaine (1996)
Harvey V. Sparks, Jr. (1997)
James A. Schafer, *ex officio* (1996)

Leonard R. Johnson, *ex officio* (1995)
 Martin Frank, *ex officio* (indefinite)
 James Liakos, *ex officio* (indefinite)

Honorary Membership

Recommends to Council candidates for nomination to honorary membership—distinguished scientists who have contributed to the advancement of physiology.

Francis J. Haddy, Chair (1995)
 Stanley G. Schultz (1997)
 John B. West (1996)

International Physiology

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

Melvyn Lieberman, Chair (1995)
 Marie Cassidy (1996)
 Marcelino Cerejido (1995)
 Kenneth J. Dormer (1996)
 Claes E. G. Lundgren (1996)
 Ian A. Reid (1997)
 Clark Blatteis, *ex officio* (1995)
 Craig Malbon, *ex officio* (1995)
 Robert W. Berliner, *ex officio* (1997)
 Harvey V. Sparks, Jr., *ex officio* (1997)

Liaison With Industry

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

David P. Brooks, Chair (1995)
 James E. Foley (1997)

Joseph D. Fondacaro (1997)
 Nancy J. Hutson (1996)
 Terry J. Opgenorth (1997)
 Bruce A. Stanton (1996)
 Stephen L. Bealer, *ex officio* (1997)
 Francis L. Belloni, *ex officio* (1997)
 Ethan R. Nadel, *ex officio* (1997)

Long-Range Planning

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

Shu Chien, Chair (1996)
 Walter F. Boron (1995)
 Allan D. Cherrington (1996)
 John S. Cook (1997)
 Susan Leeman (1996)
 Patricia J. Metting (1995)
 David B. Young (1997)

Membership

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

Hannah Carey, Chair (1996)
 Jack A. Rall (1995)
 Russell C. Scaduto, Jr. (1997)
 Lawrence P. Schramm (1996)
 Sue Amy Shapses (1997)
 Thomas C. Vary (1996)
 Nancy K. Wills (1995)

Perkins Memorial Fellowship

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

Robert Berliner, Chair (1995)
 Donald G. Davies (1997)
 Arthur B. Otis (1995)
 Aubrey E. Taylor (1997)
 Molly P. Hauck, *ex officio* (indefinite)

Porter Physiology Development

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

Eleanor L. Ison-Franklin, CoChair (1996)
 H. Maurice Goodman, CoChair (1995)
 Reinier Beeuwkes (1997)
 Martha Blair (1996)
 Sarah D. Gray (1996)
 David Mohrman (1995)
 Michael J. Overton (1997)
 Phillip L. Rayford (1995)
 Guido E. Santacana (1996)
 R. Clinton Webb (1997)
 Martin Frank, *ex officio* (indefinite)

Program

Develops the scientific programs for the Society with the assistance of the Program Advisory Committee and assists Council in shaping policy for scientific programs and in the organization of fall conferences.

Ethan R. Nadel, Chair (1997)
 Elaine K. Gallin (1995)

Michael P. Hlastala (1995)
 Richard L. Moss (1997)
 Hiroko Nishimura (1996)
 D. Eugene Rannels (1997)
 James A. Schafer, *ex officio* (1996)
 Martin Frank, *ex officio* (indefinite)

Program Advisory

Recommends to the Program Committee scientific programs for the APS meetings and conferences, organizes contributed abstracts into sessions, and selects sessions chairs and introductory speakers.

Chair—Ethan R. Nadel (1997)
 Cardiovascular—Gary K. Owens (1997) & Kathryn Lamping (1998)
 Cell and General Physiology—Jack H. Kaplan (1996)
 Central Nervous System—Helen Baghdoyan (1997)
 Comparative Physiology—Michael A. Castellini (1997)
 Endocrinology and Metabolism—Susan K. Fried (1998)
 Environmental and Exercise Physiology—Charles M. Tipton (1996)
 Gastrointestinal Physiology—Patrick Tso (1997)
 Neural Control and Autonomic Regulation—Michael C. Andresen (1997)
 Renal Physiology—Leon C. Moore (1996) & Jeff M. Sands (1997)
 Respiration—Richard D. Bland (1996)
 Teaching of Physiology—Nels C. Anderson (1997)
 Water and Electrolyte Homeostasis—Tom Lohmeier (1997)
 Clinical Physiology Group—Richard J. Traystman (1996)
 Epithelial Transport Group—John Cuppoletti (1995)
 History of Physiology Group—Giuseppe Sant'Ambrogio (1996)
 Hypoxia Group—Reed W. Hoyt (1996)
 Myobio Group—Thomas M. Nosek (1996)
 Members in Industry Group—David P. Brooks (1996)
 Education Committee—Francis L. Belloni (1997) & Aviad Haramati (1997)

Public Affairs

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

Eric O. Feigl, Chair (1997)
 Florence N. Hutchison (1997)
 Virendra B. Mahesh (1996)
 Lazaro Mandel (1995)
 Roger J. M. McCarter (1995)
 Terry Thrasher (1997)
 Phyllis M. Wise (1996)
 David P. Brooks, *ex officio* (1995)
 Jeffrey L. Osborn, *ex officio* (1997)

Publications

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

Leonard R. Johnson, Chair (1995)
 Dale J. Benos (1997)
 Jerome A. Demsey (1997)
 Lorne Mendell (1995)
 John A. Williams (1995)
 Loring B. Rowell, *ex officio* (1995)
 Leonard S. Jefferson, *ex officio* (1996)
 Martin Frank, *ex officio* (indefinite)
 Brenda B. Rauner, *ex officio* (indefinite)

Section Advisory

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

Chair—Richard J. Traystman (1996)
 Cardiovascular—Allyn L. Mark (1997)

Cell and General Physiology—Paul J. De Weer (1998)
 Central Nervous System—Celia D. Sladek (1997)
 Comparative Physiology—Larry I. Crawshaw (1997)
 Endocrinology and Metabolism—Marian R. Walters (1997)
 Environmental and Exercise Physiology—Carl V. Gisolfi (1997)
 Gastrointestinal Physiology—Gilbert A. Castro (1997)
 Neural Control and Autonomic Regulation—Cheryl M. Heesch (1996)
 Renal Physiology—Roger G. O'Neil (1996)
 Respiration—Edward D. Crandall (1996)
 Teaching of Physiology—David S. Bruce (1996)
 Water and Electrolyte Homeostasis—Ian A. Reid (1997)

Senior Physiologists

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

Suk Ki Hong, Chair (1996)
 John Blinks (1996)
 Carl Gottschalk (1995)
 Robert R. Grover (1995)
 Steven Horvath (1995)
 Richard L. Malvin (1997)
 Harold S. Weiss (1997)

Women in Physiology

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

Cheryl M. Heesch, Chair (1995)
 Kim E. Barrett (1996)
 Gregory L. Florant (1996)
 Cynthia A. Jackson (1996)
 Kathryn F. LaNoue (1995)
 Celia D. Sladek (1997)
 Alice Villalobos (1996)

Society Representatives to Other Organizations

**American Association for
Accreditation of Laboratory
Animal Care**
 Jeffrey L. Osborn (1997)

**American Association for the
Advancement of Science**
 Peter W. Hochachka (1995)
 Jack L. Kostyo (1995)

**Council of Academic Societies of
the Association of American
Medical Colleges**

Vernon S. Bishop (1998)
 George A. Hedge (1997)

**Federation of American Societies
for Experimental Biology**

Board

Brian R. Duling (1996)
 James A. Schafer (1997)

**Executive Officers Advisory
Committee**

Martin Frank (indefinite)

Finance Committee

Norman P. Alpert (1995)

Excellence in Science Award

Cheryl M. Heesch (1995)

Life Sciences Advisory Committee

Margaret C. Neville (1997)

Public Affairs Committee

Eric O. Feigl (1997)

Publications Committee

Catherine S. Chew (1997)

Research Conference Advisory Committee

Allen W. Cowley, Jr. (1996)

Wellcome Visiting Professorship

Mrinacini Rao (1996)

National Association for Biomedical Research

Martin Frank (indefinite)

US National Committee for IUPS

Brian R. Duling (1996)
 Leonard S. Jefferson (1997)
 James A. Schafer (1998)
 Martin Frank, *ex officio* (indefinite)

US National Committee on Biomechanics

Peter Abbrecht (1996)

Future Meetings

1995

APS Conference

Understanding the Biological Clock:
 From Genetics to Physiology

July 8-12, 1995
 Hanover, NH

APS Conference

New Discoveries Within the Pancreatic Polypeptide
 Family: Molecules to Medicine

November 8-11, 1995
 Newport Beach, CA

1996

Experimental Biology '96

April 14-18, Washington, DC

APS Conference

pHysiology of Acid-Base Regulation:
 From Molecules to Humans

To Be Announced

APS Conference

Neural Control of Breathing:
 Molecular to Organismal Perspectives

To Be Announced

APS Intersociety Meeting

The Integrative Biology of Exercise

October 1996
 Vancouver, British Columbia

1997

Experimental Biology '97

April 6-10, New Orleans, LA

Conferences

1995 APS Conference

New Discoveries Within the Pancreatic Polypeptide Family: Molecules to Medicine

November 8-11, 1995, Newport Beach, California

Wednesday, November 8	Thursday, November 9	Friday, November 10	Saturday, November 11
2:00 PM Registration Opens	8:00 AM-12:30 PM The Biochemistry and Molecular Biology of NPY/PYY/PP Family Chairs: J. Polak and S. Bloom Speakers: J.M. Allen, D. Larhammar, C. Wahlestedt, T.W. Schwartz, A.B. Leiter, and C. Minth-Worby	8:00 AM-12:00 Noon New Discoveries in Actions of NPY/PYY/PP Family in the Central Nervous System Chairs: R. Rogers and T. Westfall Speakers: S.P. Kalra, W. Colmers, S. Leibowitz, W. Zipf, and A. Daniels	9:30-11:00 AM <i>Free Time</i>
6:30-8:00 PM Opening Reception	1:00-4:00 PM <i>Free Time</i>	12:00 Noon-3:30 PM <i>Free Time</i>	11:00 AM-2:30 PM Role of Peptides of the NPY/PYY/PP Family in Disease Chairs: W. Zipf and T.W. Schwartz Speakers: M. Heilig, S. Bloom, J.N. Polak, J.D. White, D. Andersen, and M. Brown
8:00-9:00 PM Historical Lecture: Discovery of the NPY/PYY/PP Family R.E. Chance	4:00-7:00 PM Distribution, Biochemistry and Molecular Biology of NPY/PYY/PP Family Chairs: C. Wahlestedt and V. Pickel Speakers: V. Pickel, R. Quirion, D.C. Whitcomb, F. Sundler, M. Laburthe, M.C. Michel, K. Rudolph, H. Doods, and A. Beck-Sickinger	3:30-7:30 PM Peripheral Autonomic Actions of Peptides from the NPY/PYY/PP Family Chairs: I. Taylor and H.J. Cooke Speakers: Z. Zukowska-Grojec, G. Aponte, J.M. Lundberg, T. Westfall, I. Taylor, H. Cox, J. Wiley, and R. Rogers	
	7:00-9:30 PM Poster Sessions	7:30-9:30 PM Poster Sessions	

Abstract Deadline: July 10, 1995

Membership

Membership Statistics

Total Membership		7,696	Distribution by Age (optional personal data)			Blood	1.7
Distribution by employment (7,188 respondents)				Total respondents		Cardiovascular	24.0
	No.	%	70+	990		Cellular and tissue	3.8
Physiology depts.	2,348	32.6	60-69	1,266		Comparative physiology	2.4
Other preclinical depts.	558	7.7	50-59	1,874		Electrolytes & water balance	5.0
Clinical	1,731	24.0	40-49	2,125		Endocrines	6.9
Administration	57	0.7	30-39	998		Energy metabolism and temp.	2.3
Hospitals and clinics	289	4.0	20-29	200		Environment	2.6
Veterinary schools	161	2.2	Principle Type of Work (7,259 respondents)			Gastrointestinal	4.9
Dental schools	43	0.5				General physiology	0.5
Public health and graduate schools	119	1.6				Gerontology	0.3
College or university	975	13.5				Immunology	0.2
Commercial companies	202	2.8	Research	74.1		Liver and bile	0.4
Government	393	5.4	Teaching	11.9		Lipids and steroids	0.6
Institutes and foundations	209	2.9	Clinical	7.1		Minerals, bone and teeth	0.5
Private practice	44	0.6	Administration	5.9		Muscle and exercise	6.6
Other, emeritus or inactive	59	0.8	Other	0.8		Neurosciences	10.4
Distribution by Racial Background and Heritage (optional personal data)			Distribution by Section Affiliation (6,176 respondents)			Nutrition and food	0.8
	Total respondents					Pharmacology	1.7
American Indian or Alaskan	13		Cardiovascular	23.8		Radiology	0.2
Asian or Pacific Islander	562		Respiration	14.1		Renal	6.0
Black	82		Cell & General	11.0		Reproduction	1.5
White	5,461		Endocrinology & Metabolism	10.2		Respiration	11.7
Hispanic	124		Environmental & Exercise	7.5		Other	0.6
Distribution by Sex (optional personal data)			Renal	7.8		APS Membership in the Americas	
	Total respondents		Central Nervous System	7.1		US	7,041
Female	1,010		Gastrointestinal	5.7		Canada	378
Male	5,959		Comparative	4.0		Brazil	19
Distribution by Earned Degree (6,840 respondents) (Includes 1,029 individuals with multiple doctorate degrees)			Neural Control & Autonomic Regulation	3.7		Mexico	11
			Teaching of Physiology	2.4		Argentina	6
			Water & Electrolyte Homeostasis	2.5		Jamaica/West Indies	5
			Distribution by Group Affiliation			Chile	4
						British West Indies	4
			MyoBio-Muscle Group	16.4		Venezuela	3
			Epithelial Transport Group	14.9		Costa Rica	1
			History of Physiology Group	7.7		Grenada	1
			Hypoxia Group	5.8		Panama	1
			Members in Industry Group	3.9		Peru	1
			Distribution by Primary Specialty (7,107 respondents)			US States With More Than 100 Members (50 States Plus District of Columbia, Puerto Rico, and Virgin Islands)	
						California	766
PhD	4,721					New York	604
MD	2,755		Anesthesia	0.6		Texas	474
DVM	182		Anatomy and embryology	0.3		Pennsylvania	409
ScD	101		Biochemistry	0.7		Maryland	378
DDS	33		Biophysics	0.6		Massachusetts	332
ED.D	10		Biomedical engineering	0.5		Illinois	319
Cand. Med.	25						

Ohio	281	United Kingdom	60	<i>Other Countries Represented:</i> Czech	
Michigan	249	France	44	Republic, Finland, Iceland, Indonesia, Ire-	
North Carolina	202	Australia	33	land, Luxembourg, Morocco, Nigeria,	
Florida	183	Switzerland	31	North Korea, Philippines, Poland, Portugal,	
New Jersey	181	Italy	27	Russia, SW Africa, Saudi Arabia, Serbia,	
Missouri	179	Netherlands	21	Thailand, Turkey, Ukraine, United Arab	
Virginia	148	Denmark	20	Emirates	
Georgia	135	Sweden	19		
Wisconsin	135	Israel	17	Canadian Provinces With 5 or More	
Minnesota	133	Spain	16	Members	
Tennessee	132	Taiwan	16		
Connecticut	130	Belgium	14	Ontario	146
Indiana	129	South Korea	14	Quebec	83
Louisiana	120	Norway	12	British Columbia	53
Alabama	113	China	12	Alberta	43
Colorado	102	Austria	10	Manitoba	26
Kentucky	102	Hong Kong	9	Nova Scotia	11
		Greece	7	Saskatchewan	10
APS Membership Outside the Americas		India	7		
(Countries with 5 or more members)		New Zealand	6		
		Hungary	5	<i>Other provinces represented:</i> New	
Japan	119	Republic of South Africa	5	Brunswick, Newfoundland, Prince Edward	
Germany	68			Island	

News From Senior Physiologists

Letters to John R. Blinks

G. Edgar Folk, Jr. writes "The nicest thing which has happened in many years was to have received the Honor Award from the Environmental and Exercise Physiology Section. This action was very inspiring and encouraging; since it happened, I seem to be getting to the office earlier than before.

I am doing each week just about what I did 20 years ago. About one-half of my time goes to the administration of a flourishing Center for Global Research. We are financed for 10 years from 1992 onward. One facet is a project at our field station on my farm, 17 miles away. Two very stimulating graduate students are working with me on a micrometeorological study.

Another segment of time is taken in refereeing manuscripts and research grants. Also we recently held a national and international conference here in Iowa City on Global Climatic Re-

search. Now we have 25 manuscripts to edit and publish.

Each year I have a very refreshing change because of leading a group of approximately 10 Alumni from this university to a tour of Antarctica. Three times I have "sung for my supper" by lecturing on these tours. There will certainly be another one in January. Fortunately, I am getting some research data out of each trip because of studying the same island where there was a crash in the penguin population. My major interest now in polar science is concerned with the food chain in the Arctic and the Antarctic Oceans, the Ozone Hole, and especially the way that fat metabolism fits into this picture."

Charles G. Wilber writes "I retired eight years ago (mandatory at age 70 in those days) as Chairman and Professor Emeritus. That status has made available to me a modest office and attached lab. Phone, fax, photocopy, and the like come with it. From time to time

I give a lecture or so in one of the courses that I had initiated at Colorado State University, e.g., the physiology of aging, physiology of marine animals, etc.

One of the quite pleasant happenings last year was my receipt of the award of "Distinguished Scholar" by Albany College in Georgia. I met with true southern hospitality on the campus. It was enjoyable to discuss with eager undergraduates and faculty the physiology of death. I also made a "town and gown" talk based on my book about the murder of J. F. Kennedy.

More recent studies concern the biophysics of wounding. A few papers have resulted. I still serve on graduate student committees but of course do not serve as advisor to students. Such might be actuarially unsound.

Annual physicals have still indicated a normal machine operating. My exercise is taken sitting or lying down: on a bicycle or swimming. Clare still has her music students. Her retirement a few years ago as Administrative Di-

rector "emerita" of the Fort Collins Symphony Orchestra in no way slowed her down.

Our summers are at the Marine Biological Laboratory, Woods Hole, MA. Luckily we bought land and built a summer house many years ago there so we can afford the toll. The Laboratory has been expanding its area of research interests to include more endeavors in the biomedical sciences."

Letters to Suk Ki Hong

William F. Agnew writes "I am still working full-time at the Huntington Medical Research Institutes as the Director of Neurological Research with a staff of about 20 people. We have several contracts with the NIH Neural Prosthesis Program of NINDS. These studies are directed toward the development of implantable electrodes and electrical stimulation parameters to be used in functional electrical stimulation of the neurologically handicapped. Our projects include studies of the feasibility of a cochlear nucleus auditory prosthesis and microstimulation of the sacral cord for control of micturition and incontinence in spinal cord injury patients."

John A. Balint writes "From 1981 to 1987 I was Chairman of the Department of Medicine at Albany Medical College. On stepping down from that post, I was given an endowed Chair named in honor of Dr. Richard T. Beebe who had been Chairman of the Department of Medicine for 19 years. I still hold that position. In the academic year 1993-94 I was on a sabbatical leave working at the Center for Clinical Medical Ethics of the Department of Medicine at the University of Chicago under the direction of Dr. Mark Siegler in preparation for assuming the position of Director of the Center for Medical Ethics Education and Research at the

Albany Medical College. I am now the Director of that unit, which is conducting research in various aspects of the doctor/patient relationship taken in a rather broad sense. One publication to this subject has appeared in *Academic Medicine*. A study of "Ethical Issues in Placing of Feeding Gastrostomy Tubes" has been completed and an abstract on that subject submitted to the 1995 meeting of the American Gastroenterological Association (AGA). A manuscript on that subject is in the final stages of preparation for submission, we hope, to the *New England Journal of Medicine*. In addition, I have written two review articles with colleagues that have appeared in the *American Journal of Physiology* on fat absorption. In addition, Dr. Patrick Tso and I have submitted an abstract to the AGA meeting for next spring on "Intestinal Absorption of Vitamin E From the Rat Intestine in Lymphfistula Animals." A manuscript on these studies is also in preparation for submission to the *American Journal of Physiology*.

In May I was asked to chair a task force for the AGA on ethics, and this task force has been busy developing policies for conflict of interest and now is going on to develop educational programs for our annual meeting. It is my intention to continue with these teaching and research programs in ethics for the next four to five years, all being well. The major thrust of this effort is a course entitled "Health, Care, and Society," which we have initiated for our medical students here in Albany and which is now in its second year and has been very well received."

Elsworth R. Buskirk writes "Retirement has really meant relative freedom to pursue one's own course without having to put the needs of others before your own, i.e., with respect to the continued need to secure grants and contracts to keep a critical mass of investigators, teachers, and staff oriented and solvent. I have retained a small cluttered office and have access to our laboratories. Commitments include edi-

torial responsibilities; reviewing of manuscripts on a regular basis; peer reviews for NIH, USDA, NASA, and DoD; and writing. In the latter regard, I have committed to contributing to and editing a book on *Exercise and Body Fluid Balance* that should be completed by the fall of 1995. I also hope to continue to attend two or three professional meetings a year and contribute where I can—APS has a high priority. At this juncture in one's life and career, health maintenance becomes more important than money or resources, but commitment to scientific progress remains quite strong."

Daniel L. Gilbert writes "I am still enjoying being in the laboratory, where I am currently Head of the Unit on Reactive Oxygen Species in the Biophysics Section of the Basic Neurosciences Program, NINDS, NIH. I am still fascinated by doing research on oxygen free radicals and other reactive oxygen species.

Last year, I was honored by presenting the opening invited talk at an International Symposium on Oxygen Radicals in Biochemistry, Biophysics, and Medicine in Buenos Aires, Argentina. My wife, Claire, and I took this opportunity to visit penguins on an island in the Beagle Channel, just south of Tierra del Fuego. It was a great thrill to know that Charles Darwin, aboard the "Beagle," was also here. On our way down to the Beagle Channel, we traveled across Patagonia to hear and see the big Moreno glacier calving on the eastern side of the impressive Andes.

At the Experimental Biology '94 in Anaheim, CA, I gave a talk about Lavoisier and phlogiston at a symposium commemorating the death of Lavoisier 200 years ago.

Also, Chuang C. Chiueh, I, and Carol A. Colton edited a volume on *Neurobiology of Nitric Oxide and Hydroxyl Radical*, which appeared late last year as Volume 738 in the *Annals of the New York Academy of Sciences*."

Letters to Harold S. Weiss

John R. Pappenheimer writes "I am still quite active in laboratory research, although the topics are quite different from those of the previous 60 years.

I note from your records that Steve Horvath is on your committee and that reminded me that in 1938 there was a paper in *The Biological Bulletin* by K. J. W. Ferguson, S. M. Horvath, and myself . . . 57 years ago.

Although I continue to work in the lab regularly, I no longer attend large meetings or accept invitations to lecture at far-off places. With regard to autobiographical data, I call your attention to the autobiographical essay entitled "A Silver Spoon" that I wrote for the prefatory chapter in *Annual Review of Physiology* (49: 1-15, 1987)."

William J. Whalen writes "I'm not continuing research or scientific writing. I did do some consulting, after retiring in 1980, with Dr. P. Nair, my wonderful long-time associate. I've also refereed a few papers, nothing spectacular.

A recent highlight was the visit here of two friends, former graduate students at the University of Iowa, Bob Gore and Brian Duling. We were planning to go fly fishing, but the weather was bad. Anyway, we had a great time.

In the wintertime, I read a lot, mainly light stuff; the latest was "West of the Pecos" by Zane Grey. It's not bad. I bowl in a Senior League. When weather permits, like now, I play golf, riding a cart, of course. I used to tie flies in winter, but I've got more flies now than I could lose in the trees along the Pecos. My wife and I do some volunteer work. We prepare and hand out lunches to the homeless at the Presbyterian Church. And we play duplicate bridge as partners, and we're still married.

In summer, in addition to fly fishing, I garden mainly flowers and tomatoes after may failures at other things."

W. Curtis Worthington, Jr. writes "I retired on June 30th, 1991, slightly more than a month before my 66th birthday, even though the expiration of annual retirement laws would have allowed me to stay on indefinitely if I had been so unwise.

The Medical University of South Carolina has an enlightened policy toward its emeritus professors. If there is a need that they can fill, and if they wish to fill it, they are encouraged to do so. These are part-time assignments such as specific lecture or laboratory assignments, special projects, advisory bodies, and the like.

My own niche is the directorship of the Waring Historical Library, a division of our main medical library. The Waring Library is a working research library with a fairly active clientele. It also doubles as a museum. I and two excellent librarians are occupied with a series of activities that address the history of medicine in South Carolina and the Southeast. I do research, write papers, and have organized a course in medical history for our students.

I veered away from bench research into administration quite a few years ago, but prior to doing so I had a moderately productive life in research. I can think of at least three (minor) "firsts" that I was involved with: the first to study the hypophyseal portal system in any detail, in vivo; the first (with George Fink) to identify the presence of a releasing factor in hypophyseal portal blood; and the first (with Robert S. Cathcart) to rediscover in this century what Kolliker well knew in the 19th [Century], that the ependym of the cerebral ventricles of the human brain is ciliated throughout.

I spend three days each week working in the library and the remaining four at my home on a salt water

tidal estuary on Edisto Island, about 40 miles south of Charleston, SC. My time is occupied with church and community activities and such salt water recreational activities as I am still physically able to pursue. I read a great deal, listen to music, am attempting some family genealogy, and, yes, I am a mystery novel fan, especially of those that have a historical setting."

Letter to Robert Grover

Jerry Kaneko writes "I retired as of June 30, 1993, 18 months earlier than I had planned because of a 'golden handshake'.

By not having to prepare for regular classes, I have been able to accelerate my revising (Vth Edition) of my *Clinical Biochemistry of Domestic Animals*. I continue to come to my office every morning to work on the book and hope that it may appear by next spring.

Having been interested in government for a long time, I also declared my candidacy for a seat on our David City Council in February, 1994, and won my seat in the June elections. I've served now for seven months, and the time and effort that must be devoted to governance is incredible. I estimate that some 30-40 hours per week are required to become knowledgeable about all the issues that come before council. No complaints. In fact, I enjoy it immensely; it is a most exhilarating experience and certainly a learning experience for a neophyte.

I also operate a small business (unrelated to my professional activities) but my time is limited. Whatever time I do have left, I'm trying to restore an old convertible and an ancient motorbike. I haven't given up all hope, but if I have time, I want to get back to fly fishing, backpacking, skiing, and all those good things that one is supposed to have time for once one retires."

Letter to Helen Tepperman

Vincent W. Adamkiewicz writes "Despite having become an Emeritus Member of the American Physiological Society ages ago, I am still a fully active member of my University: undergraduate lectures and labs, graduate students, research and publications (two this year), various academic commitments, and lots of voluntary social work (veterans, educational, and Polish affairs).

The other day I went to a lecture about the latest in multiple sclerosis.

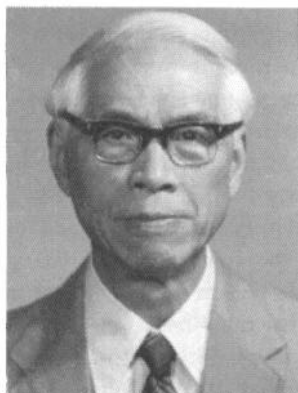
The speaker—a youngish "research professor"—presented his results smoothly, flipped before our eyes a vast number of elegant multicolored slides, spoke copiously and fast, and appeared exceedingly enthusiastic about his work.

What a wonderful gift of God enthusiasm is! Listening to the speaker I suddenly remembered the old Latin aphorism: "*Ars longa, vita brevis*" (Science is long, life is short. Hippocrates, circa 400 BC). Without enthusiasm Science would have remained stuck long ago, behind the galloping History.

Multiple sclerosis was described by J. B. Charcot (1825-1893) of France

in 1850. My grandfather Albert (1850-1921) wrote his doctor's thesis about it in the 1870s in Germany. The thesis contains hand-sectioned, hand-drawn microscopic pictures through the lesions. All that happened one hundred years ago. Today there is still no cure for the disease. However, thank God, there are plenty of science enthusiasts about, who do not mind running all their lives after something they know full well they may never catch up with. And, one day, one of them will find a cure. When that happens, won't it be a sure struck of pure serendipity?"

Te-Pei Feng 1907-1995



Te-Pei Feng, Honorary Member of the American Physiological Society and Honorary Director of the Shanghai Institute of Physiology, Chinese Academy of Sciences, died on April 10, 1995 at the age of 88.

Feng's long scientific career had several outstanding landmarks. The first landmark was when he studied in the laboratory of Professor A. V. Hill in University College London working on the heat production of muscle and nerve. Among his achievements during that period was his discovery of the increase of the resting heat production of muscle on passive stretch, which later became known as the "Feng effect."

The second landmark was the period 1934-1941, just after his return from abroad, when he was teaching in the Department of Physiology, Peking Union Medical College. During this period he opened a new research direction in the physiology of neuromuscular junction. He made a number of seminal discoveries; in the period of 1936-1941 he and his students published a long series of 26 papers on neuromuscular junction in the *Chinese Journal of Physiology* (English), which attracted worldwide attention among neurophysiologists. He soon became an internationally acknowledged pioneer in modern research on neuromuscular junction.

The third landmark in his research career was in the field of nerve-muscle trophic relations, which he entered in 1961 with a spectacular discovery at the very beginning, namely, the discovery of the extraordinary phenomenon of postdenervation hypertrophy in the slow muscle fibers of the chick. He resumed his research in this field in the 1970s and together with his collaborators made important contributions to the problem of the neural determination of the phenotypic characteristics of skeletal muscle fibers.

When he reached the age of 80, Feng took up the study of synaptic plasticity in central synapses, in particular

long-term potentiation (LTP) and had already made a significant contribution to the cellular mechanisms underlying LTP.

Feng was born in 1907 in Zhejiang, China and obtained a bachelor's degree in biology from the Fudan University in 1926 and a master's degree in physiology from the University of Chicago in 1930. He earned a doctorate in physiology from the University College of London in 1933. After returning to China in 1934, he served as professor of physiology at the Peking Union Medical College until 1941. In 1943 he became an acting director of the Medical Research Institute (preparatory), Academia Sinica. When the Institute was renamed the Institute of Physiology in 1950, Feng served as a director until 1984. At the time of his death, Feng was professor emeritus and honorary director of the Shanghai Institute of Physiology. During Feng's lifetime, he published over 100 scientific papers.

Feng was elected to the Chinese Academy of Sciences in 1955. He was a foreign associate of the National Academy of Sciences (US), a member of the Third World Academy (1986), and a foreign member of the Indian Academy of Sciences (1988). Feng was elected to honorary memberships from various societies, including the American Physiological Society in 1983.

Emil Bozler 1901-1995



Emil Bozler, PhD, age 93, Professor Emeritus in the Department of Physiology at The Ohio State University and long-time member of the American Physiological Society, died on March 7, 1995 at Wesley Glen in Columbus, Ohio. Born in Steingeborn, Germany in 1901, Bozler received his PhD in zoology from the University of Munich in 1923. From 1923 to 1932, he was an Instructor of Physiology at the University of Munich. From 1923 to 1929 he was a Rockefeller Fellow in the laboratory of A. V. Hill at University College London. He was a Research Fellow at the Johnson Foundation at the University of Pennsylvania from 1932 to 1936. In 1933 he married Klara Hoppe whom he had known as a student at the University of Munich.

Bozler came to the Department of Physiology in the College of Medicine at The Ohio State University in 1936 as an Assistant Professor. He was promoted to Associate Professor in 1942, to Professor in 1945, and to Professor Emeritus in 1971. After his retirement he continued his research on muscle physiology until 1992.

He was a Fulbright Scholar in 1958 and was conferred the honorary Doctor

of Science degree by The Ohio State University in 1975. He was a honorary member of the German Physiological Society and the Japan Society of Smooth Muscle Research. He was a member of the American Physiological Society for 63 years. In 1989 an international symposium was held at The Ohio State University to honor him and to celebrate his contributions to the science of muscle physiology. At that symposium it was announced that the North Wing of Hamilton Hall, where Bozler worked for 50 years and where the Department of Physiology is currently housed, would furthermore be known as the "Emil Bozler Wing." At the age of 87, he was still actively involved in research and held a grant from the NIH. In 1993 he was inducted into the Ohio Science, Technology and Industry Hall of Fame.

Bozler's scientific publications span 65 years (from 1926 to 1990). During this time, he published more than 100 papers. Bozler made fundamental discoveries in smooth, cardiac, and skeletal muscle physiology at The Ohio State University.

He was best known for his work on smooth muscle physiology. Indeed, he has been described as "the father of smooth muscle physiology." From 1938 to 1948, using mechanical and electrophysiological techniques, he established that smooth muscle could be grouped into two broad functional categories that he designated as visceral smooth muscle and multiunit smooth muscle. Bozler concluded that visceral smooth muscle was similar to cardiac muscle in that both exhibited automaticity and syncytial behavior. In contrast, multiunit smooth muscle resembled skeletal muscle in that both were activated by motor nerves and both exhibited electrical activity that did not spread to adjacent muscle fibers. His discovery of electrical continuity among certain smooth muscle fibers was a major advance. It is known now

that most but not all smooth muscles fall strictly into one of the two categories proposed by Bozler. Nonetheless, this classification is still generally accepted because of its wide practical utility.

In 1943 Bozler discovered the basis of the inherent rhythmicity of vertebrate cardiac muscle. He observed a wave of slowly rising negativity that preceded the discharge of a propagated action potential in the sinus node of the hearts of various animals and called the localized, nonpropagated response, the "pacemaker prepotential."

From 1951 to 1958, Bozler made important observations concerning the roles of ATP and calcium ion in skeletal muscle contraction and relaxation. In 1951 he discovered that skeletal muscle induced to contract in the presence of ATP and magnesium could be made to relax by increasing the ATP concentration. Relaxation was prevented if calcium was present. This was the first demonstration of the dual role of ATP in a muscle preparation with intact contractile machinery and implicated calcium in the contraction/relaxation process. In 1954 Bozler showed for the first time that skeletal muscle could be made to relax from contraction by the chelation of calcium ion. These observations ultimately led to the discovery by S. Ebashi of the function of the sarcoplasmic reticulum as a calcium ion-sequestering organelle that is responsible for muscle relaxation and his discovery of the first known calcium binding protein, troponin.

In addition to his wife Klara, he is survived by his daughter Ruth (Dr. Donald) Moorhead; sons Dr. Hans (Diane) Bozler and Dr. Carl Bozler; granddaughters Holly (William) Geittmann, Karla Bozler, and Juliana Bozler; grandsons Dr. Cary (Julie) Moorhead and Colin Moorhead; and great-granddaughters Heather Geittmann and Madeleine Moorhead.

Tobacco Health Tax Bill Introduced

The APS is joining with anti-smoking and patient advocacy groups, biomedical scientists' professional societies, and senior citizens groups in endorsing H.R. 1455, the "Tobacco Health Tax and Agricultural Conversion Act of 1995." You are encouraged to ask that your US Representative cosponsor this bill.

H.R. 1455 was introduced on April 6 by Rep. Fortney "Pete" Stark (D-CA). The bill would levy a hefty increase in the federal tax on cigarettes, raising it to \$2.00 per package from its current level of \$0.24 starting on September 30, 1995. The bill would also raise federal taxes on other tobacco products by similar proportions. This is expected to generate \$17 billion per year, almost 90% of which would be funneled into the Medicare Part A Trust Fund.

However, 9% of the proceeds from the increased tobacco tax, or about \$1.5 billion, would go to a National Fund for Medical Research to supplement the regular NIH appropriation. This would amount to a 13% increase over the current NIH budget. The remaining 3% of the revenues would be split between a Tobacco Conversion Account to assist individuals and communities that currently rely on tobacco farming to change to other crops and industries and a Health Education Account to educate Americans on health risks including tobacco use.

APS supports this bill because we recognize that there are tremendous opportunities in biomedical research today, and the regular NIH appropriations have not been able to keep up with them. Furthermore, the current budgetary climate prom-

ises only to get worse in coming years. Therefore, the APS believes that we must seek opportunities apart from the annual appropriation. In testimony earlier this year before the House Appropriations Subcommittee on Labor-HHS-Education, APS Executive Director Martin Frank outlined this position. Dr. Frank noted that NIH has made a particular contribution to certain sectors of society by reversing the harm caused by occupational and environmental factors, as well as alcohol, drugs, and violence, and suggested that those who have benefited from NIH research should make special contributions for its furtherance.

Anti-smoking groups support this bill because they say that higher tobacco taxes may discourage young people from taking up smoking. It has been suggested that most smokers acquire their addiction prior to age 20 and that a substantial tax accompanied by a concerted effort to educate this population on the health dangers of smoking may be an effective prevention strategy.

Nevertheless, it will take a lot of work to get this legislation passed. As you know, many members of Congress won office this year vowing to cut taxes, not raise them. There will undoubtedly be opposition from the tobacco industry, but it is hoped that the concerns of communities economically dependent on tobacco farming may be allayed by the bill's provisions for a "tobacco conversion" program.

Please take a moment today to write urging your Representative to support this measure and become a cosponsor. A sample letter follows:

Dear Rep. _____:

I am writing to ask you to support H.R. 1455 and to become a cosponsor of this bill. It would help our nation's health in the following ways:

- discourage young people from starting to smoke by increasing the federal tax on cigarettes and conducting a public education campaign on health risks including smoking;
- put 88% of the money collected — possibly about \$100 billion over the next 7 years — into the Medicare Trust Fund, which may otherwise go bankrupt at the end of that time; and
- use 9% of the money collected to fund life-saving medical research at the National Institutes of Health.

I believe that we should do all of these things. The fund also would provide some money to help people who right now depend upon tobacco farming for their livelihood so that they can find another way to earn a living. Please let me know whether you will cosponsor this legislation.

Sincerely,

Principles and Techniques of Practical Biochemistry (Fourth Edition)

Keith Wilson and John Walker (Editors)

New York, NY: Cambridge University Press, 1994, 586 pp., illus., index, \$99.95. ISBN: 0-521-41769-4

I have been teaching a course focusing on biochemical techniques to first-year graduate students in biochemistry and related health sciences for over 10 years, and I have recently been keeping my eyes peeled for the appearance of an appropriate up-to-date text that covers both the theoretical basis as well as the practical aspects of commonly used laboratory techniques. For the first several years of teaching this course, I was very satisfied with Freifelder's *Physical Biochemistry* (W.H. Freeman and Co.), but this book was last edited in 1982 and obviously does not cover many modern advances in methods that are now commonly used in the lab. Now I recommend a combination of books, since the book market really lacks an up-to-date book that covers these techniques in one volume. However, this approach tends to be hard on a student's finances. Hence, when I received the 1994 version of Wilson and Walker's *Principles and Techniques of Practical Biochemistry*, I was particularly eager to read it, since this book covers such a wide array of essential topics in one volume. However, I have been very disappointed with its usefulness.

In chapter 1, the author discussed General Principles of Biochemical Investigations. This chapter presented a host of topics that are either discussed in too much or too little detail. For example, the section on microscopy barely covered principles of microscopy and the workings of the light microscope and yet spent an inordinate amount of space on electron microscopy, a technique too specialized for the general student. The section on statistical analyses was done much too cursorily to be of any use, whereas a more focused discussion on the various approaches commonly used in the preparation of cell extracts and the isolation of macromolecules would have been much more useful.

The chapter on immunochemical techniques suffered from a lack of a thorough discussion of the limitations of the various methods. For example, specificity of immune reactions were discussed without any mention of cross-reactivity. Similarly, the Ouchterlony technique, which was presented as "probably the most widely used immunochemical technique" (this is certainly not true in the US), had no discussion regarding its limitations. I would have imagined that mentioning the very old yet cheap and easy method of agglutination analysis (as in red blood cell typing) would certainly have been warranted.

In the chapter on molecular biology techniques, the author summarized nucleic acids techniques used primarily in prokaryotic systems. I would have liked to have seen more discussion on cDNA cloning (which is barely mentioned) and the more important variations in the PCR technique, including specific applications. The lack of discussion of eukaryotic systems and techniques such as reporter gene expression and baculovirus expression of proteins indicated to me that this chapter was not up to date.

The discussion on enzyme kinetics and inhibitors described in chapter 4 was much too detailed, whereas the section on protein-ligand binding, which certainly is also important, was given relatively short shrift.

Chapter 7 presented spectroscopic techniques and again suffered from a very uneven treatment. Nearly ten pages were spent on ultraviolet and visible spectroscopy, but the brevity of the discussion on the very current nuclear magnetic resonance rendered it useless. Although infrared and Raman spectroscopy were discussed together, the section on instrumentation only discussed infrared and left the reader with the false impression that this instrumentation could also be used for Raman analyses.

Lack of space prevents me from mentioning deficiencies found in the chapters on radioisotopes, centrifugation, mass spectrometry, chromatography, electrophoresis, and electrochemical techniques.

Finally, I was struck by the lack of good editing in this fourth edition. In the two copies of this text that I examined, equations were missing (1.3, 1.4, and 1.5) or incorrect (10.3). In addition, whole paragraphs were missing (e.g., top of p. 521).

In general, this book suffers from uneven treatments of various techniques: important and current methods are either barely mentioned or discussed in insufficient detail, whereas certain older methods are reviewed at great length even though they are no longer used in many labs. This tends to give wrong impressions to students who are getting their first exposure to practical biochemistry. In addition, I would have liked to have had more emphasis on the advantages/disadvantages of each technique. In short, I do not intend to recommend this book to my students.

Jack Y. Vanderhoeck

George Washington University Medical Center

Molecular Biology of Diabetes, Parts I and II

Boris Draznin and Derek LeRoith (Editors)

Totowa, NJ: Humana Press Inc., 1994, 404 pp., illus., index, \$99.50. ISBN: 0-12-283980-3

This multi-author book consists of two volumes, the first entitled *I: Autoimmunity and Genetics; Insulin Synthesis and Secretion* and the second *II: Insulin Action, Effects on Gene Expression and Regulation, and Glucose Transport*.

The first volume (which was sent to me for review) comprises 16 well-illustrated chapters: 4 pertaining to the molecular mechanisms of autoimmunity and the genetics of type I diabetes, followed by 12 chapters on the molecular and cellular aspects of insulin synthesis and secretion. The 16 chapters vary somewhat in their quality of content, completeness, and writing; most are well written, carefully organized, and thoroughly researched, but others are somewhat superficial and contain errors. The chapters in this volume also suffer from the inevitable lack of up-to-date information that results from the lag between their writing and publication. For example, chapter 2 on murine transgenic models of type I diabetes, while an otherwise excellent chapter, had no reference more recent than 1992.

The first four-chapter section of the book is generally well written. Chapter 4, which deals with the pathogenesis of autoimmune diabetes, contains a very interesting, clear, and detailed description of studies on the role of CD4+ T cells in the disease process in NOD mice. A little more discussion of the role of CD8+ T cells as disease effectors would have added to this otherwise very good chapter. In addition, a number of studies on the pathogenesis of

autoimmune diabetes in mouse, rat, and human systems would have been desirable.

The second section of this volume begins with chapter 5 and a discussion on insulin gene structure and regulation. This chapter's introduction is excellent, but the next section on insulin gene structure could be more complete. Information on the promoter region of the gene is overemphasized, and Figure 2 is incomplete. The exons coding for the alpha and beta chains of insulin are ignored in the text, and much of the information shown in Figure 3 cannot be understood until after having read further on in the chapter.

I can highly recommend chapter 6 on molecular engineering of glucose-regulated insulin secretion. The authors have provided a good background to the focus areas of this chapter and have presented a balanced view of their own work and that of others. The distinct topic areas covered are tied together well, and the chapter progresses logically. On the other hand, chapter 7 on glucokinase gene expression and regulation is a loosely organized chapter with conclusions drawn in a rather obscure manner (although from properly cited work). Chapter 8 on the fundamentals of fuel sensing and intermediary metabolism in pancreatic alpha and beta cells is well written, and Figure 4, which clearly describes the impact on pancreatic alpha and beta cells of the citric acid cycle in the metabolism of physiological nutrients, is very helpful to the reader. Preproinsulin-processing endopeptidases are dealt with in chapter 10, a clearly written chapter containing several pertinent schematic presentations that are of use to both the generalist and the expert in the field.

Chapter 11 is entitled "GTP and Its Binding Proteins in the Regulation of Insulin Exocytosis." Table 1 in this chapter, however, deals with this and other cellular roles for GTP, resulting in some of the information in this table being only somewhat related to insulin exocytosis.

The remaining five chapters, whose topics include beta cell receptors, ion channels, gap junction proteins, amyloid polypeptides, and insulin secretion, all give good overviews of their respective topics.

Overall, part I of *Molecular Biology of Diabetes* provides a solid review of a number of topics for the student, clinician, and researcher, who will then have to seek other more up-to-date information in their areas of interest. This book would still serve as a good basic reference on the molecular biology of diabetes.

Ji-Won Yoon
University of Calgary

The Physiology of Reproduction (Second Edition)

Ernst Knobil and Jimmy D. Neil (Editors-in-Chief)
Gilbert S. Greenwald, Clement L. Markert, and Donald W. Pfaff (Associate Editors)
New York, NY: Raven Press, 2 vols., 1994, 3,302 pp., illus., index, \$360.00. ISBN: 0-7817-0086-8

This two-volume work first appeared in 1988 to "fill the need for a comprehensive, scholarly treatise on the physiology of mammalian reproduction." It was inspired by *Sex and Internal Secretions*, a somewhat similar handbook, the last edition of which appeared in

1961. In its first incarnation, *The Physiology of Reproduction* contained 2,413 pages made up of 60 chapters produced by 100 contributors. A decision was soon made to revise it, and this second edition appeared six years later, in 1994. Its growth has been remarkable. It contains only one more chapter, but there are now 120 contributors, and they have written 3,302 pages. Like the first edition, it has five major sections: 1) gametes, fertilization, and early embryogenesis; 2) the reproductive systems; 3) the pituitary and the hypothalamus; 4) reproductive behavior and its control; and 5) reproductive processes and their control. Within each section, there is consideration of components, physiological processes, and process control. Most of the chapters are encyclopedic, with hundreds of references and, in one instance, over 1,700 references. All aspects of reproduction are covered. A theme of the two-volume work is that there is remarkable variation in reproductive processes from one mammalian species to another, and most of the chapters provide comparative data on a variety of species. Most of the chapters are up-to-date, although three are reproduced without change from the first edition. An excellent Forward by Roy Greep provides the historical context for the book and interesting comments on the present state of reproductive physiology by one of the giants in the field.

Some unavoidable redundancy and uneven writing is inevitable in contributed volumes of this size. Sex differentiation and sperm morphology, for example, are topics in which the redundancy is obvious. The unevenness stretches to editorial matters as well; for example, the bibliographies in some of the articles list references alphabetically, whereas in others the references are listed in the order in which they are cited in the text. In anything as encyclopedic as this, the latter arrangement makes individual references hard to find. The illustrations are generally profuse, although some are a bit sketchy.

Overall, these criticisms are minor. On balance, the second edition of *The Physiology of Reproduction* is indeed a comprehensive, scholarly treatise on the physiology of mammalian reproduction, and it will be a valuable reference for those working in the field. One can hardly call it a vade mecum in the strict portable sense of the term—it weighs almost 18 pounds on my bathroom scale. However, placed in the center of laboratory and department libraries, it will be a much used source of information for some years to come.

On the other hand, a difficult question faced by the American Physiological Society and publishers in general is whether to publish weighty handbook-type extremely detailed summaries in the various fields in physiology with the idea that these books will be useful without revision for a decade or more or to publish shorter reviews at more frequent intervals. *The Physiology of Reproduction* illustrates this problem. The editors published the first edition of the book in the former mold. However, they decided it had to be revised and expanded in only six years. This reflects in part filling gaps in the first edition, but it also reflects the rapidity with which the biomedical sciences are advancing. It is difficult if not impossible to get all the relevant information in one place, and the information that is gathered is soon out of date. Therefore, it may be wiser to focus in the future on more frequent short reviews. However, there are arguments on both sides; the important point is that publishers, including the American Physiological Society, must face the question and decide.

William F. Ganong
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The Molecular Basis of Smell and Taste Transduction

Derek Chadwick, Joan Marsh, and Jamie Goode (Editors)
Ciba Foundation Symposium 179
Somerset, NJ: John Wiley & Sons, Inc., 1994, 287 pp., index,
\$72.00. ISBN: 0-471-93946-3

The explosion in knowledge of the molecular receptors, transduction pathways, and physiological mechanisms subserving gustation and olfaction has to be included among the remarkable success stories in sensory physiology during the past 10 years. In the case of olfaction, the field has moved in surefooted fashion during that period from the recognition that cAMP and IP₃ pathways likely participate in stimulus transduction to the isolation and characterization of the specific proteins that comprise the two G protein-mediated second messenger pathways. Now, with the application of patch-clamping techniques and the availability of agonists and antagonists that act at various steps in the transduction cascade, workers in the field are coming ever closer to a detailed dissection of the biochemical and physiological events that intercede between exposure to an odorant and the signal that is conveyed via the olfactory nerve to the olfactory bulb. Likewise, in the case of gustation, the application of analogous techniques and preparations have generated insights that have clarified the transduction of the four basic tastants: sweet, salty, sour, and bitter. *The Molecular Basis of Smell and Taste Transduction* provides a snapshot of these two rapidly progressing areas. It serves as an excellent introduction to the encoding of chemosensory stimuli for senior graduate students, postdoctoral fellows, and established investigators. In addition, it focuses the attention of more experienced chemosensory scientists on the many remaining gaps in our understanding of transduction in these two related, yet distinct, systems.

The book is a compilation of papers presented by participants in a symposium of the same title, organized by F. L. Margolis (Roche Institute of Molecular Neurobiology; Chair of the Symposium) and T. V. Getchell (University of Kentucky College of Medicine) that took place under the sponsorship of the Ciba Foundation in London from February 19-21, 1993. Befitting the title, the book has a biochemical and molecular biological bent, although it does provide some coverage of the advances in understanding of transduction at an electrophysiological and channel level that have been achieved by the application of patch-clamp techniques. As is typical of all volumes in the Ciba Foundation series, each paper is followed by a transcript of the discussion that followed its presentation. In addition, the book includes transcripts of three general discussion periods and a summing up by Margolis. As is also typical of volumes of this nature, some of the information has become somewhat outdated in the interval between the conference and its publication. Nonetheless, the contributions are of a uniformly high quality as might be expected from the list of participants, since most (but not all) of the major laboratories studying chemosensory transduction are represented either as presenters or discussants.

Several of the contributions stand out. For example, from the olfactory side, the paper from L. B. Buck's laboratory (Harvard University) outlines the discovery and characterizes the pattern of spatial expression of a large family of genes expressed in olfactory epithelium that share structural and sequence homology with members of the G protein-activating receptor superfamily. These putative

odorant receptors (PORs) are the best candidates yet described to fill the role of odorant receptors. Thus, the pattern of expression across the epithelium, which has implications for various models of olfactory coding, is described and discussed in some detail. As a consequence of their recency, the data relating POR expression and the pattern of axonal connections with the bulb are absent from the discussion. The presentation by H. Breer (Universitat Hohenheim) provides some physiological evidence in support of the receptor candidacy of the PORs. In this case, expression of one member of the POR family after transfection into SF9 cells was sufficient to confer on them the capacity to generate an odorant-evoked increase in IP₃ levels using a limited battery of odorants. The discussion of this particular paper, which delves into the nuts and bolts of the transfection results, illustrates one of the strengths of the volume, namely the in-depth evaluation of a critical foundation experiment by concerned peers. This type of interaction is one to which workers outside the field of chemosensory transduction are not generally privy, but it can serve to crystallize the current issues and suggest future directions.

Other contributions from laboratories of Margolis, R. Reed (Johns Hopkins School of Medicine), and D. Lancet (Weizmann Institute of Science) address the mechanisms that direct specific gene expression to the neurons of the olfactory epithelium. The work of Margolis and Reed demonstrates that an olfactory-specific response element exists and identifies the protein factor Olf-1 that binds to it. The latter demonstration by Reed illustrates a modification of the yeast two-hybrid system that should be especially powerful approach to the identification of other gene-regulatory factors. Lancet's mapping of the cluster of POR genes on human chromosome 17 clearly demonstrates the need for such information, which will be required to explain the pattern of POR expression across the epithelium. The book provides a valuable introduction to olfaction in two genetically tractable organisms, *D. melanogaster* (J. Carlson, Yale University) and *C. elegans* (C. I. Bargmann, University of California, San Francisco), and illustrates their power as analytical models. Finally, the paper by S. Firestein (now at Columbia University) describes the state of the information regarding channel and whole cell behavior that have provided by patch clamping. In this case, the gap between presentation and publication is unfortunate, since Firestein's and others laboratories have advanced the field by further defining the multiplicity of channel mechanisms that are employed by olfactory neurons of both mammals and amphibians by using caged analogues of the second messengers and of kinase inhibitors.

The contributions that focus on gustation mirror the approaches summarized above. They cover the gamut from psychophysics (L. Bartoshuk, Yale University School of Medicine) through patch clamping and single-cell recording (J. A. DeSimone, Medical College of Virginia and S. C. Kinnamon, Colorado State University) to molecular biological aspects of transduction and tastant delivery (R. F. Margolske, Roche Institute of Molecular Biology and H. Schmale, Universitat Hamburg).

Beyond the descriptions of the nearly current state of the field, the book does an excellent job in bringing to the fore unanswered questions and potential future research directions. A perusal of the individual and general discussion periods identifies a number of critical questions and discusses the state of our knowledge (both published and unpublished) with respect to them. For example, one of the most critical questions yet to be answered focuses on the number of types of molecular receptors expressed by a single olfac-

BOOK REVIEWS

tory neuron or taste cell. The favored hypothesis from this book and other recently published papers is one neuron-one POR. However, the comments of B. Ache (University of Florida) indicate that individual lobster olfactory neurons have two distinct transduction cascades, each activatable by distinct sets of stimuli, which imply that they express more than one receptor. Is the same true of mammals, or are these pathways expressed in different cells in the mammalian olfactory epithelium? A simple list of other salient questions is sufficient to convey the flavor of the direction that the field is likely to take. Has the failure to demonstrate seven transmembrane domain PORs in invertebrates an indication that they do not use that type of molecule, or is it simply a technical problem? Why has it been so difficult to characterize individual PORs at a physiological level following transfection into nonolfactory cells, and how might this be

overcome? What is the relationship between individual cell sensitivities and psychophysical thresholds, which cannot be fully explained at present? Is the restricted expression of PORs or tastant receptors in selected cells based on target-derived instructions or some type of intrinsic determination?

The quality of the contributions and the stimulating nature of the discussions makes *The Molecular Basis of Smell and Taste Transduction* a valuable addition to one's library, but given the rapid pace of research it will need to be updated sooner than the interval between the present volume and the last Ciba Symposium to address chemosensory transduction, which was published nearly 25 years ago.

James E. Schwob
SUNY Health Science Center at Syracuse

BOOKS RECEIVED

Bioenergetics: Its Thermodynamic Foundations. Lars Garby and Poul S. Larsen. New York, NY: Cambridge University Press, 1995, 270 pp., illus., index, \$59.75. ISBN: 0-521-45143-4.

Cell Physiology Source Book. Nicholas Sperelakis (Editor). San Diego, CA: Academic Press, 1995, 738 pp., illus., index, \$99.00. ISBN: 0-12-656970-3.

Dynamic Energy Budgets in Biological Systems: Theory and Applications in Ecotoxicology.

S.A.L.M. Kooijman. New York, NY: Cambridge University Press, 1995, 350 pp., illus., index, \$64.95. ISBN: 0-521-45223-6.

Magnesium & Physical Activity. L. Vecchiet (Editor). New York, NY: The Parthenon Publishing Group, 1995, 265 pp., illus., index, \$29.00. ISBN: 1-85070-626-3.

Nutrient Requirements of Laboratory Animals. Fourth Revised Edition. Subcommittee on Laboratory Animal Nutrition, Committee on Animal Nutrition, Board on Agriculture, and National Research Council. Washington, DC: National Academy Press, 1995, 174 pp., index, \$29.95. ISBN: 0-309-5126-6.

Phylogeny and Development of Catecholamine Systems in the CNS of Vertebrates. Wilhelmus J.A.J. Smeets

and Anton Reiner (Editors). New York, NY: Cambridge University Press, 1995, 488 pp., illus., index, \$150.00. ISBN: 0-521-44251-6.

Stress, Catecholamines, and Cardiovascular Disease. David S. Goldstein. New York, NY: Oxford University Press, 1995, 539 pp., illus., index, \$75.00. ISBN: 0-19-506538-7.

Work Related Musculoskeletal Disorders; (WMSDS): A Reference Book for Prevention. Ikka Kuorinka and Lina Forcier (Editors). Bristol, PA: Taylor & Francis, 1995, 421 pp., illus., index, \$37.50. ISBN: 0-7484-0132-6.

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The Ernst Knobil Symposium and Festschrift



The Ernst Knobil Symposium was held at the University of Pittsburgh on Saturday, June 11, 1994. The purpose of the Symposium was to honor the most remarkable career of Ernst Knobil and to provide his fellows, students, friends, and colleagues an opportunity to acknowledge his influence on their own endeavors. The Symposium, which was held in the Frick Museum of Fine Arts, was moderated by Dr. Jack L. Kostyo, University of Michigan Medical School, and was comprised of a series of five lectures by former fellows and colleagues. Dr. H. Maurice Goodman, University of Massachusetts Medical School, presented the first lecture entitled "Growth Hormone and the Concept of Species Specificity." Goodman explained the evolution of Knobil's studies from the early 1950s. When Knobil began to study growth hormone (GH) it was generally recognized to be inactive in humans. Knobil's early work demonstrated that, although bovine GH was inactive in hypophysectomized monkeys, GH prepared from monkey pituitaries promoted nitrogen retention and a variety of metabolic responses.

The second lecture, entitled "The Control of the Menstrual Cycle," was presented by Dr. Tony M. Plant, University of Pittsburgh School of Medicine. Plant discussed how Knobil, in the mid-1960s, decided to study the control of the ovarian cycle because he found it difficult to apply the dogma generated

from studies of the rat to explain to medical students the operation of the human menstrual cycle. Having selected the rhesus monkey, which, like the human female, has a 28-day menstrual cycle, Knobil and his colleagues spent almost a decade developing radioimmunoassays to measure the pituitary gonadotropins [luteinizing hormone (LH) and follicle-stimulating hormone (FSH)] and the ovarian steroids, estradiol and progesterone. With this methodological armamentarium it became possible to precisely describe the major endocrine events of the primate menstrual cycle and thus to pose, for the first time, meaningful questions about the underlying mechanisms of cyclicity.

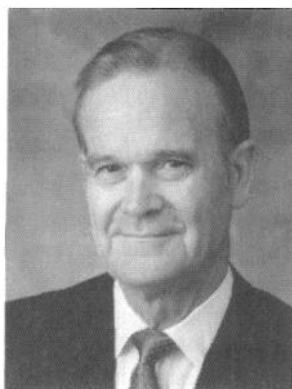
The third lecture, "The Birth of the Concept of the GnRH Pulse Generator," was presented by Dr. Fred J. Karsch, University of Michigan. Karsch traced how, some 25 years ago, Knobil and his fellows discovered that the secretion of LH in ovariectomized monkeys is characterized by intermittent hourly discharges. This landmark observation revolutionized our theoretical construct for the neuroendocrine regulation of reproduction and spawned decades of productive research worldwide. From this discovery, Knobil and his colleagues formulated the concept of a neural oscillator within the hypothalamus, one that drives a periodic discharge of gonadotropin-releasing hormone (GnRH) and, in turn, the episodic secretion of LH. The fourth testimonial was presented by Dr. Gerson Weiss, New Jersey Medical School. Weiss, whose lecture was entitled "The Application of Knobil's Findings to the Clinic," outlined how Knobil's clear description of the mechanisms controlling the menstrual cycle has resulted in revolutionary advances in the care of women with reproductive problems. The studies of the monkey have been directly applied to the understanding of clinical endocrinology, which has, in turn, led to a greater control of reproductive processes.

The last lecture of the Symposium was given by Dr. F. Eugene Yates. This

session was entitled "The Way of An Investigator." Yates discussed the high points of Knobil's career, with illustrations of the many honors bestowed upon him. The talk emphasized the striking parallel between the achievements of Walter Cannon and Ernst Knobil, in that both showed a remarkable "feeling for the organism" and a deep intuition about integrated performance of the whole living being. Capable of using the tools of reductionistic science, both always remembered to "come back up" to the functioning organism for validation of their work. It is not too much to say that Knobil is the inheritor from Cannon of the leadership of American physiology in its grandest extent. However, in style Knobil's investigations were reminiscent more of Claude Bernard—a connection all the more appropriate because, as a young boy in Paris, Knobil attended a school named after that giant of physiological science. Yates concluded by noting that the beauty of Knobil's research, the logical force evident in it, the esteem with which it is regarded, combined with Knobil's gift for teaching provide a salutary foundation for our science in the next century. Sir James Black, Nobel Laureate and himself an integrative physiologist, sees that future as "the triumph of physiology over molecular biology" and should that occur, Knobil's achievements will be first among the demonstrations of the sweeping power of organismic biology.

The Symposium was concluded by the unveiling of a portrait of Dr. Knobil, which was presented to Dr. George M. Bernier, Jr., Dean, University of Pittsburgh School of Medicine, and finally by the presentation of the Festschrift to Dr. Knobil. The Festschrift, which was edited by Dr. Jack Kostyo, comprised a compilation of previously published works by 50 of Knobil's former and present fellows and students, each preceded by a brief biographical sketch of the contributor. The published works appearing in the Festschrift span the period from 1960 to 1994.

Sanders to Run for US Senate



APS member **Charles Sanders** has announced his candidacy for the United States Senate. Running as a democrat from North Carolina and should he win the primary, he will be facing long-time incumbent republican, Jesse Helms on the ballot. As a practicing cardiologist, an educator, a businessman, and a father, Sanders hopes to "give voters the choice of a candidate free from labels, a candidate who offers business-based common sense and caring." Throughout his career, Sanders notes he has "worked to build consensus, to balance the costs versus needs and through the process determine the best course to take in improving the health of the patient or of the business." A statewide poll in February showed a statistically insignificant difference between Sanders, another democratic challenger, Harvey Gantt, and Jesse Helms, despite the fact that Sanders has not held or even ever run for office. In the 1990 race, Gantt lost to Helms, leaving Sanders enthusiastic about his chances for both the primary and main election, saying "the time is ripe for a new candidate who can offer strong leadership to North Carolina."

Kaplan Elected to Royal Society

APS member **Jack H. Kaplan** was recently elected a Fellow of the Royal Society of London. He is active in the Cell and General Physiology Section of APS, serving on the Program Advisory Committee. He also recently was named chair of the Department of Biochemistry and Molecular Biology at Oregon Health Sciences University in Portland, OR.

Maddox Appointed NICHD Deputy Director



Yvonne T. Maddox, APS member, has been appointed deputy director of the National Institute of Child Health and Human Development (NICHD). Before joining NICHD, Maddox was chief of the Pharmacology and Physiological Sciences Branch, National Institute of General Medical Sciences (NIGMS), where she also served as deputy director of Biophysics and Physiological Sciences Program

Branch, as acting director of the Minority Access to Research Careers Program, and as health scientist administrator in the Physiological Sciences Section. She has been active in many trans-NIH activities, including women's health, trauma task force, nutrition, grants associates board, and the STEP program.

Maddox has received many awards, including the 1990 Public Health Service Special Recognition Award and the 1990 NIH Directors Award. Among her outside activities, she is chair of the board of directors of the Center for Development and Population Activities, which provides access to health and family planning information and services to women and families in Third World countries. She is also a member of the American Physiological Society, American Federation for Clinical Research, Society for Experimental Biology and Medicine, and the New York Academy of Sciences.

Maddox joined NIGMS as a health scientist administrator in 1985. Before joining NIGMS, she was a research assistant professor in the Department of Physiology and Biophysics at Georgetown Medical Center. From 1981 to 1983, she was an NIH postdoctoral fellow at Georgetown involved in research on the role of eicosanoids in pulmonary vascular reactivity. Maddox obtained her Ph.D. in physiology from Georgetown University for research on the regulation of vascular tone by prostacyclin.

People and Places

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

People and Places

M. Donald Blafox has accepted a position with the Department of Nuclear Medicine, Montefiore Medical Park/Bronx, NY. Prior to his new assignment, M. Donald Blafox was with the Department of Nuclear Medicine, Albert Einstein College of Medicine, Bronx, NY.

Accepting a position as Assistant Professor in the Department of Physiology, **Holly Brown-Borg** is now at the University of North Dakota School of Medicine, Grand Forks, ND. Previously, she was a postdoctoral fellow in the Physiology Department, Southern Illinois University, Carbondale, IL.

Joann Buczek-Thomas has accepted a position with the Department of Dermatology, Massachusetts General Hospital, Boston, MA. Prior to her new position, Joann Buczek-Thomas was with the Department of Biochemistry and Molecular Biology, Worcester, MA.

Ronald N. Cortright, formerly with the Department of Applied Physiology, Kent State University, OH, has accepted a position with the Department of Biochemistry, East Carolina University School of Medicine, Greenville, NC.

Michael J. Dunn has been appointed the new Dean and Executive Vice President of the Medical College of Wisconsin, Milwaukee, WI. Prior to Michael J. Dunn's new appointment, he served concurrently at Case Western Reserve and the University Hospitals of Cleveland, OH, in numerous administrative capacities.

Having accepted a postdoctoral position, **Esther E. Dupont-Versteegden** has moved to the University of Arkansas for Medical Sciences, Little Rock, AR. Prior to her new assignment, she was with the Department of Physiology, University of Texas, San Antonio, TX.

James R. Haselton is currently with the Department of Physiology, University of North Dakota, Grand

Forks, ND. Before relocating, James R. Haselton was with the Department of Physiology & Biophysics, University of Nebraska Medical Center, Omaha, NE.

Zafar Iqbal has accepted a position with the Program Review Division, Veterans Administration Central Office, Washington, DC. Prior to his new appointment, he was with the Department of Neurology, Northwestern University, Chicago, IL.

Capt. Douglas R. Knight, USN, has moved from the Department of Medicine, Physiology Section, University of California, San Diego, La Jolla, CA. He has since joined the Cardiology Diagnostics Department of Children's Hospital, Columbus, OH.

Now with the Department of Medicine, Pulmonary Section, Baylor College of Medicine, Houston, TX, **Kevin Michael Krause** was formerly with the Department of Physiology & Biophysics, University of Kentucky College of Medicine, Lexington, KY.

Susan M. (Reynolds) Krause is currently with the Baylor College of Medicine Pulmonary Section, Houston, TX. Previously, Susan M. (Reynolds) Krause was with the Department of Physiology & Biophysics, University of Kentucky Medical Center, Lexington, KY.

Hua Lin recently relocated to the Department of Cardiology, University of Chicago, Chicago, IL, from the Department of Thoracic Surgery Research Lab, Ann Arbor, MI.

Having accepted a new position, **J. Antonio G. Lopez** is now with Prairie Cardiovascular Consultants, Ltd., of Springfield, IL. Prior to his new position J. Antonio G. Lopez was associated with the Department of Internal Medicine, University of Iowa Hospital & Clinics, Iowa City, IA.

Moving from the Mayo Clinic, Rochester, MN, **David Megirian** is now with the Department of Physical

Therapy/Exercise Science, State University New York at Buffalo, NY.

Candace S. O'Connor moved from the Department of Biology, Portland State University, Portland OR, to the Department of Biology, University of Nevada, Reno, NV.

David C. Pang is now employed with the Department of Medical Information, U.S. Pharmacopeial Convention, Inc., Rockville, MD. Prior to accepting this position, David C. Pang was with the Department of Drugs, American Medical Association, Chicago, IL.

Currently with the Department of Pediatrics, Division of Gastroenterology/Nutrition, Medical University of South Carolina, Charleston, SC, **Radhakrishna Rao** was formerly with the Department of Pharmacology, University of Arizona, Tucson, AZ.

Una S. Ryan has accepted a position with the Department of Medicine, T Cell Sciences, Inc., Needham, MA. Previous to this position, Una S. Ryan was with the Department of Medicine, Boston University Medical Center, Boston, MA.

Having moved to Honolulu, HI, **Dean O. Smith** accepted an appointment with the Office of the Senior Vice President for Research/Graduate Education, University of Hawaii. Dean O. Smith was previously employed with the Department of Physiology, University of Wisconsin, Madison, WI.

Mark S. Sothmann has joined the Office of Research and Graduate Studies, School of Allied Health Sciences, Indianapolis, IN. Previously, Mark S. Sothmann was with the Department of Human Genetics, University of Wisconsin-Milwaukee, Milwaukee, WI.

Bruce Eric Wright has relocated to the Department of Pharmacodynamics, University of Florida, Gainesville, FL. Bruce Eric Wright had been employed by the Department of Physiology, Louisiana State University Medical Center, New Orleans, LA.

POSITIONS AVAILABLE

Assistant Professor. The Department of Anatomy, Physiology, and Cell Biology, School of Veterinary Medicine, University of California, Davis, is recruiting for an Assistant Professor of Veterinary Systemic Physiology. Qualifications include either a PhD with advanced training in vertebrate systemic physiology and strong foundation in pathophysiology of animal diseases or preferably DVM or equivalent and strong foundation in molecular techniques, with demonstrated aptitude/experience in teaching and ability or potential to secure extramural funds. Documented research record or potential to develop independent research program necessary. Preference given to those whose research interests complement existing departmental programs. Teaching responsibilities include DVM professional curriculum lectures and laboratories in systemic physiology including animal endocrine, renal, and gastrointestinal systems; participation in graduate academic programs (MS and PhD); and undergraduate instruction in physiology. Research responsibilities include the development of creative, independent and productive research program, with publication of results in professional/scientific journals and to provide leadership in directing research projects of graduate students. University and public service is expected through committee work, participation in professional organizations, continuing education, and other appropriate means. To apply, submit a letter of intent outlining special interest in position, overall related qualifications, experience, and career goals; a curriculum vitae; a research and teaching goals summary; and the names, titles, and addresses of three references to: Dr. Dallas M. Hyde, Department Chair, Department of Anatomy, Physiology, and Cell Biology, School of Veterinary Medicine, University of California, Davis, CA 95616. Applications accepted through July 15, 1995, or until candidate is identified. [EOAAE]

Positions Available

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

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

Physiology and Biophysics Assistant or Associate Professor. Applications are invited for a tenure-leading faculty position in the Department of Physiology and Biophysics at the University of Nebraska College of Medicine. We are particularly interested in recruiting a cardiovascular physiologist whose interests lie in understanding integrative cardiovascular function by using cellular and/or molecular techniques. The successful candidate will be expected to establish an independent, funded research program that will complement a group of cardiovascular investigators whose research is at the integrative, organ, and cellular level. Additional responsibilities will be engaging in the teaching programs of the department at the medical school and graduate levels. A competitive salary and setup funds are available. Applicants should forward by July 1, 1995, a curriculum vitae, a brief description of research accomplishments, plans for future research, and the names of three individuals who can serve as references to: Harold D. Schultz, PhD, Chairman, Search Committee, Department of Physiology & Biophysics, University of Nebraska College of Medicine, 600 South 42nd Street, Omaha, NE 68198-4575. Minorities and women are encouraged to apply. [EOAAE]

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Charles E. Culpeper Foundation Scholarships

The Charles E. Culpeper Foundation is currently accepting applications for its 1996 Scholarships in Medical Science Program designed to support the career development of academic physicians.

Up to three awards of \$100,000 per year for three years will be made to US medical schools on behalf of candidates who are US citizens, have received their MD degree from a US medical school in 1987 or later, and 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, 23 physicians have been selected as Charles E. Culpeper Foundation Medical Scholars.

The deadline for applications is August 15, 1995. Awards will be announced by January 12, 1996 for activation on or about July 1, 1996. Application forms and instructions may be obtained by contacting Glenn Vallach at the Charles E. Culpeper Foundation at Financial Centre, 695 East Main Street, Suite 404, Stamford, CT 06901 (tel: 201-307-1970; fax: 201-307-5632).

Fulbright Scholarships Available

APS member Bernard Hoop served as a Fulbright Scholar in India during the 1992-93 academic year. He "found the experience to be one of the most extraordinary and enriching of my career, both professionally and culturally." In 1996 the Fulbright program is approaching its 50th anniversary. As a result, overseas universities, particularly in South Asia, are expanding the development of new academic relationships among scholars and institutions, in which the Fulbright Program plays a central role with lecturing awards in almost every discipline. The Council for International Exchange of Scholars (CIES), which administers the Fulbright Scholar Program, has issued an invitation for inquiries and applications. For more information, contact Dr. Hoop (tel: 617-726-3983; internet: bhoop@helix.mgh.harvard.edu) or CIES directly through either Lydia Z. Gomes (tel: 202-686-4014; internet: mesa7@ciesnet.cies.org), Sone Phanhavong (tel: 202-686-4009; internet: mesa6@ciesnet.cies.org), or CIES at 3007 Tilden Street, N.W., Suite 5M, Box GBRO, Washington, DC 20008-3009 (tel: 202-686-4000; internet: info@ciesnet.cies.org).

Highly Inbred Wistar Rats Available

A highly inbred colony of Wistar rats maintained in genetic isolation for 29 years is available for research purposes. The colony was started with 6 females and 12 males obtained from commercial research sources and has been maintained by random matings. The size of the colony has varied over the years from 50-350 animals. The housing facilities have been limited to a single laboratory, and access to the colony has been limited to maintenance personnel and researchers. Animals once removed from the housing facility were never returned. The colony, currently composed of approximately 20 animals, is to be eliminated in June due to the retirement of the principal investigator. Interested researchers may request a specific number of males and females or impregnated females. To obtain stock from this colony, please contact immediately Dr. Chris N. Skrepetos, Professor of Biology, Emeritus (phone: 503-482-5054; e-mail: skrepoto@tao.sosc.osshe.edu).

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APStracts is a WAIS-searchable, on-line publication of abstracts of current research manuscripts accepted for publication in the journals of The American Physiological Society. Dates of manuscript submission, acceptance, and corresponding author information are included with each abstract.

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Scientific Meetings and Congresses

Fourth IBRO World Congress of Neuroscience, July 9-14, 1995, Kyoto, Japan. *Information:* Congress Secretariat, Fourth International Congress of Neuroscience, c/o International Communications Specialists, Inc., Kasho Bldg., 2-14-9, Nihombashi, Chuo-ku, Tokyo 103, Japan. Tel: 81-3-3272-7981; fax: 81-3-3273-2445.

Vascular Biology and Remodeling in Atherosclerosis, Thrombosis and Restenosis, July 17-18, 1995, Hyatt Regency Hotel, New Brunswick, NJ. *Information:* Strategic Research Institute, 500 Fifth Avenue, 11th Floor, New York, NY 10110. Tel: 212-302-1800 or 800-599-4950; fax: 212-302-9850; e-mail: sri-reg@mcimail.com.

Advances in Tissue Engineering, August 1-6, 1995, Rice University, Houston, TX. *Information:* Rice University School of Continuing Studies, Mail Stop 550, 6100 Main Street, Houston, TX 77005-1892. Tel: 713-520-6022 or 527-4803; fax: 713-285-5213; e-mail: scs@rice.edu.

American Institute of Biological Sciences 46th Annual Meeting, August 6-10, 1995, Town and Country Hotel, San Diego, CA. *Information:* AIBS Meetings Department, 730 11th St., NW, Washington, DC 20001-4521. Tel: 1-800-992-2427 or 202-628-1500; fax: 202-628-1509.

Fourth International Congress of Comparative Physiology and Biochemistry, August 6-11, 1995, Birmingham, UK. *Information:* International Union of Biological Sciences, Ltd., China Court Business Centre, Ladywell Walk, Birmingham B5 4RX, UK. Tel: 44-121-622-3644; fax: 44-121-622-2333.

Third International Head-Out Water Immersion Symposium, August 28-29, 1995, Copenhagen, Denmark. *Information:* Peter Norsk, DAMEC Research A/S, Rigshospitalet 7522, Tagensvej 20, DK-2200 Copenhagen N, Denmark. Tel: 45-35-36-14-64; fax: 45-35-36-22-82.

Society of General Physiologists' 49th Annual Symposium: Organellar Ion Channels and Transporters, September 6-10, 1995, Woods Hole, MA. *Information:* David Clapham, Department of Pharmacology, Mayo Clinic and Foundation, Rochester, MN 55905. Tel: 507-284-5881; fax: 507-284-9111.

Organellar Ion Channels and Transporters, September 7-9, 1995, Marine Biological Laboratory, Woods Hole, MA. *Information:* Society of General Physiologists, PO Box 257, Woods Hole, MA 02543-0257. Tel: 508-540-6719; fax: 508-540-0155.

Surfaces in Biomaterials Symposium, September 7-9, 1995, Minneapolis, MN. *Information:* Surfaces in Biomaterials Foundation, c/o ARDEL Management, Inc., PO Box 26111, Minneapolis, MN 55426-0111. Tel: 612-027-6707.

Inflammation '95: World Congress on Inflammation, September 17-22, 1995, Brighton, UK. *Information:* Kay Dorelli, Inflammation '95, Triangle House, Broomhill Rd., London SW18 4HX, UK. Tel: 81-877-9920; fax: 81-877-9308.

Targeting of Novel Therapeutics to the Liver and GI Tract, September 21-22, 1995, Bethesda, MD. *Information:* The Digestive Diseases Interagency Coordinating Committee Office, 11426 Rockville Pike, Suite 410, Rockville, MD 20852. Tel: 301-594-5168; fax: 301-594-1171.

Second Symposium on Applied Physiology of the Peripheral Circulation. The Pulmonary Circulation: Moving From Passive

to Active Control, September 22-23, 1995, Barcelona, Spain. *Information:* Michael R. Pinsky, MD, Organizing Committee, Department of Anesthesiology and Critical Care Medicine, University of Pittsburgh, 604 Scaife Hall, Pittsburgh, PA 15261. Tel: 412-647-5387; fax: 412-647-8060; e-mail: pinsky@smtp.anes.upmc.edu.

Biomedical Engineering Society 1995 Annual Fall Meeting, October 6-9, 1995, Boston University, Boston, MA. *Information:* Kate Straus, BMES Fall Meeting 1995, 45 Avon Rd., Wellesley, MA 02181. Tel/fax: 617-237-2277; e-mail: bmes95@aol.com.

Transcriptional Activation in Response to Cytokines and Growth Factors, October 6-9, 1995, Keystone, CO. *Information:* American Society for Biochemistry and Molecular Biology, 9650 Rockville Pike, Bethesda, MD 20814. Tel: 301-530-7145; fax: 301-571-1824; e-mail: asbmb@asbmb.faseb.org.

Specificity of Growth Factor Signaling, October 13-16, 1995, Granlibakken, Lake Tahoe, CA. *Information:* American Society for Biochemistry and Molecular Biology, 9650 Rockville Pike, Bethesda, MD 20814. Tel: 301-530-7145; fax: 301-571-1824; e-mail: asbmb@asbmb.faseb.org.

The Role of Lipid Messengers in Signal Transduction Pathways, Cellular Regulation, and Disease, October 20-23, 1995, Keystone, CO. *Information:* American Society for Biochemistry and Molecular Biology, 9650 Rockville Pike, Bethesda, MD 20814. Tel: 301-530-7145; fax: 301-571-1824; e-mail: asbmb@asbmb.faseb.org.

Tracer Methodology Course, October 29-November 3, 1995, Galveston, TX. *Information:* University of Texas Medical Branch, PO Box 55176, Galveston, TX 77555-5176. Tel: 409-770-6605; fax: 409-770-6825.

Third International Glycobiology Symposium, November 29-December 1, 1995, San Diego, CA. *Information:* Paddy Batchelder, California Separation Science Society, PO Box 370, Pleasanton, CA 94566. Tel: 510-426-9601; fax: 510-484-3024.

Fourth National Symposium on Biosafety: Working Safely With Research Animals, January 27-31, 1996, Westin Peachtree Plaza Hotel, Atlanta, GA. *Information:* Fourth National Symposium on Biosafety, c/o Exposition and Meeting Concepts (EMC), PO Box 250381, Atlanta, GA 30325-0381. Tel: 404-355-4884; fax: 404-355-6765.

Bioartificial Organs: Science and Technology, July 21-26, 1996, Nashville, TN. *Information:* Barbara Hickernell, Engineering Foundation Conferences, 345 E. 47th Street, New York, NY 10017. Tel: 212-705-7836; fax: 212-705-7441; e-mail: engfnd@aol.com.

VI World Conference on Clinical Pharmacology and Therapeutics and VI Congress of the Interamerican Society for Clinical Pharmacology and Therapeutics, August 4-10, 1996, Buenos Aires, Argentina. *Information:* CPT96 and ISCPT VI, Marcelo T. de Alvear 1980, 1122 Buenos Aires, Argentina. Tel: 54-1-81-6650; fax: 54-1-814-2733.

Second World Congress on Alternatives and Animal Use in the Life Sciences, October 20-24, 1996, Utrecht, The Netherlands. *Information:* World Congress Alternatives 1996, FBU Congress Bureau, PO Box 80.125, 3508 TC Utrecht, The Netherlands. Tel: 31-30-53-5344/2728; fax: 31-30-53-3667; e-mail: l.donkers@pobox.ruu.nl.