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Inside

Allen W. Cowley, Jr.
70th President of APS

Can APS Capture the Bright Future of Physiology?

The recent 1996 report of the Long-Range Planning Committee was entitled, "The Sun Breaks Through the Clouds: A Bright Future for Physiology" (4). This encouraging assessment of our discipline should be viewed with a sense of optimism and relief following many years of pessimistic forecasts. However, even if this optimistic assessment of physiology is accurate, does it follow that the future of APS is just as bright? I do not believe so, since it is evident to many of us that, in our Society, everything is not yet coming up roses.

As emphasized in the Long-Range Planning Committee Report, there is good reason to believe that research in general will be increasingly directed toward achieving a better understanding of integrative biological function. This coincides with the overriding goal of APS. I wish to emphasize in this editorial, however, that APS must move quickly to embrace these emerging opportunities. The goal of capturing the "bright future of physiology" must be addressed, and our Society must rise to this challenge by focusing on creative scientific programming. No other society is presently in a position to be the organizing element for the integration of research related to the expression of gene function at the level of the cell, organ, and organism. The need for the integration of these various levels of biological function has never been greater, and this provides an exciting and important opportunity for APS.

Over the past five years, APS has undergone many changes, which were comprehensively summarized by James Schafer one year ago (5). Much has been accomplished based on the January 1992 strategic planning retreat, which resulted in important new directions for our Society. We have made great strides toward advancing our goals related to science education in secondary schools, and we are currently addressing the teaching of physiology in medical and graduate education. We have greatly enhanced our public policy and legislative advocacy efforts in support of basic biomedical research. APS has effectively utilized the "information highway" to keep our membership and Society well informed on fast-breaking issues of vital interest to our members. These advances were made possible by the decision of Council to utilize a portion of the considerable APS assets to fund new programs to enhance the strategic goals of our Society. These activities have clearly strengthened our Society,

(continued on page 58)

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Contents

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Association of Chairmen of Departments of Physiology 1996 Survey Results

Janice M. Gentry and R. John Solaro
Department of Physiology and Biophysics, University of Illinois at Chicago

The Association of Chairmen of Departments of Physiology annual survey was mailed to 155 physiology departments throughout the US, Canada, and Puerto Rico. A total of 110 surveys were returned, for a response rate of 71%. This rate is higher than the 1995 survey (60%).

The data provide the reader with general trends of faculty salary, overall departmental budgets, and space available for research. Faculty salary information (Tables 1 – 3) is derived from the total compensation column, which includes any supplementary income but not fringe benefits. In addition to salary information, further data are provided on tenure, gender, ethnicity, and salary by number of years in rank.

Most of the statistics are based on 110 responses (four from Canada and one from Puerto Rico), but salary, tenure, gender, ethnicity, and number of

(continued on page 52)

Table 1. Faculty Salaries for Fiscal Year 1996

	Mean	% Change From Previous Survey	Minimum	Maximum	No. of Faculty
Chairmen					
All schools	$135,309	6.9	$34,454	$212,350	107
Medical public	132,485	10.6	34,454	207,900	70
Medical private	144,539	2.2	45,168	212,350	30
Nonmedical	123,993	-14.0	55,892	206,000	7
Female	85,454	-0.5	34,454	152,239	5
Professors					
All schools	92,233	2.2	32,540	242,200	687
Medical public	89,210	3.1	32,540	242,200	487
Medical private	101,041	-0.9	35,821	202,201	163
Nonmedical	93,229	-1.0	45,000	238,770	37
Female	90,256	7.3	49,161	166,251	73
Associate Professors					
All schools	67,222	1.1	34,710	135,000	416
Medical public	66,613	3.0	34,710	109,000	276
Medical private	69,264	-3.3	36,273	135,000	126
Nonmedical	60,845	-7.7	44,000	88,000	14
Female	68,470	1.4	38,000	102,302	83
Assistant Professors					
All schools	54,220	1.4	17,382	106,774	321
Medical public	53,791	3.5	17,382	106,774	179
Medical private	54,664	-0.9	27,000	77,910	119
Nonmedical	55,261	-4.2	20,000	93,800	23
Female	53,027	2.3	25,500	81,780	86
Instructors					
All schools	37,680	-4.3	20,000	58,464	47
Medical public	36,805	7.2	20,000	58,464	35
Medical private	40,233	-19.4	33,000	52,489	12
Female	35,415	-2.8	20,000	50,000	25

ACDP 1996 Survey Results

(continued from page 51)

years in rank results are calculated on the number of respondents providing this information. From the returned surveys, there was one institution that did not provide any faculty information. With regard to the other surveys, the salaries of only 10 faculty were not reported. Also missing for some faculty were years in rank (61), ethnicity (66), and for two institutions no department head information was provided.

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

Departmental budget information (Table 4) is by type of support, faculty salaries derived from grants, negotiated indirect cost rates, and percentage of returned indirect costs. Table 5 ranks responding institutions according to total dollars, research dollars, and space. Space averages are presented by research, administration, teaching, and other. NR indicates no response.

For the most part, results are calculated on the number of respondents providing information, and inconsistent data were eliminated in an attempt to achieve accurate statistics within each category. ❖

We are grateful for the development of software by Charlene Smith, formerly of the University of Oklahoma. ❖

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	$124,260	34	0-5	$84,022	209	0-5	$66,024	219	0-5	$53,985	281	0-5	37,113	37
6-10	138,733	33	6-10	90,520	168	6-10	67,293	88	6-10	56,534	34	6-10	41,298	7
11-15	141,857	16	11-15	94,721	134	11-15	70,144	39	11-15	52,833	4	11-15	42,751	1
16-20	144,892	11	16-20	97,613	89	16-20	72,343	32	16-20	0	0	16-20	0	0
21-25	146,792	9	21-25	101,914	65	21-25	68,958	25	21-25	0	0	21-25	33,949	1
26+	122,601	4	26+	98,865	22	26+	62,214	13	26+	50,703	2	26+	32,000	1

Type of Institution (*n* = 109)

Support		*Teaching Interactions*			
Public	74	MD/DO	94	Pharmacy	25
Private	35	DDS	29	Other biomedical	54
		DVM	11	Life science	48
		Allied health	57	Bioengineering	28

Faculty Summary (*n* = 1,522)

	Male	*Female*
American Indian/Alaskan Native	0	1
Asian/Pacific Islander	86	21
Black, not Hispanic origin	34	6
Hispanic	47	17
White, not of Hispanic origin	1045	210
Foreign national	44	11

Tenure status in each department by degree (*n* = 1,499)

	Tenured	*Not Tenured*	*Not Eligible*	*Total*
MD	83	9	14	106
PhD	940	219	134	1293
Both	51	16	5	72
Other	16	3	9	28

Student/Trainee Summary

Total number of pre- and postdoctoral students/trainees

Predoctoral male	967	Postdoctoral male	641
Predoctoral female	737	Postdoctoral female	360

Total number of foreign pre- and postdoctoral students/trainees

Predoctoral male	296	Postdoctoral male	377
Predoctoral female	199	Postdoctoral female	150

Ethnicity of each pre- and postdoctoral student/trainee

	Predoctoral		*Postdoctoral*	
	Male	Female	Male	Female
American Indian/Alaskan Native	2	3	2	1
Asian/Pacific Islander	91	71	55	38
Black, not Hispanic origin	28	50	8	9
Hispanic	17	26	5	11
White, not of Hispanic origin	533	388	194	151

Number of foreign pre- and postdoctoral students/trainees

	Predoctoral		*Postdoctoral*	
	Male	Female	Male	Female
African	6	6	4	0
Asian/Pacific Islander	161	105	243	59
Central and South American	10	5	17	7
European, Canadian, Australian	87	66	87	68
Middle Eastern	23	12	20	9
Other	9	5	6	7

ACDP 1996 Survey Results

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

	Predoctoral	*Postdoctoral*
Institutional	181	128
Research grants	398	203
Private foundations	46	29
Home (foreign) governments	36	18
Other	36	21

Predoctoral Trainee Completions

Number of trainees who have completed doctoral work during the year ended June 30, 1996 (n = 69)

Predoctoral male 134 *Predoctoral female* 108

US citizen/resident alien predoctoral trainee completions:

	Male	*Female*
American Indian/Alaskan Native	0	7
Asian or Pacific Islander	11	11
Black, not of Hispanic origin	5	3
Hispanic	4	2
White, not of Hispanic origin	73	58

Foreign National predoctoral trainee completions:

	Male	*Female*
African	3	2
Asian or Pacific Islander	26	17
Central or South American	1	2
European, Canadian, Australian	7	5
Middle Eastern	4	1
Other	0	0

Average annual starting stipend (in US dollars) for trainees:

Predoctoral (n = 99)	*Postdoctoral* (n = 92)
$13,380.46	$25,198.32

Space Controlled by Department (n = 108)

Research	15,940
Administration	2,595
Teaching	3,017
Other	1,704
Total space	23,257

Table 3. Salaries by Region

Region	Mean	Minimum	Maximum	Number
Chairmen				
Northeast	$141,178	$34,454	$211,241	29
Midwest	141,287	75,830	211,218	32
South	132,150	42,000	212,350	29
West	140,502	96,133	207,900	12
Canada/Puerto Rico	68,873	45,168	80,447	5
Professors				
Northeast	100,551	40,800	184,000	173
Midwest	90,048	35,821	172,443	194
South	89,855	32,540	202,201	199
West	97,649	33,648	242,200	90
Canada/Puerto Rico	59,038	47,627	78,352	31
Associate Professors				
Northeast	71,969	36,273	135,000	105
Midwest	68,842	44,000	109,000	139
South	64,383	35,074	91,563	122
West	65,169	34,710	91,205	36
Canada/Puerto Rico	45,558	36,768	55,136	14
Assistant Professors				
Northeast	56,080	37,500	77,910	65
Midwest	55,558	20,000	80,975	115
South	51,401	17,382	106,774	92
West	57,404	25,500	93,800	40
Canada/Puerto Rico	38,366	34,945	42,751	9
Instructors				
Northeast	42,140	33,000	58,464	14
Midwest	34,403	27,000	46,502	8
South	36,326	20,000	52,489	21
West	40,802	32,418	53,600	3
Canada/Puerto Rico	20,529	20,529	20,529	1

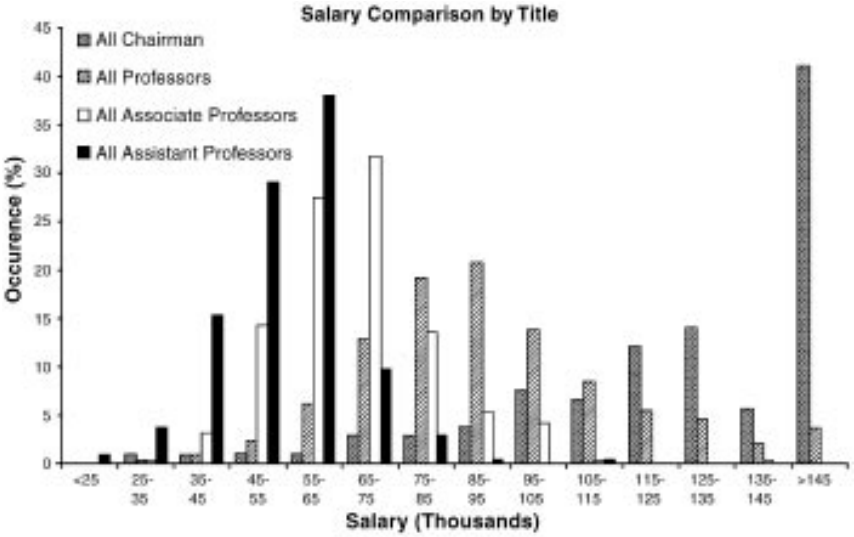
Northeast: ME, NH, VT, NY, MA, RI, CT, NJ, PA, MD, DE, DC

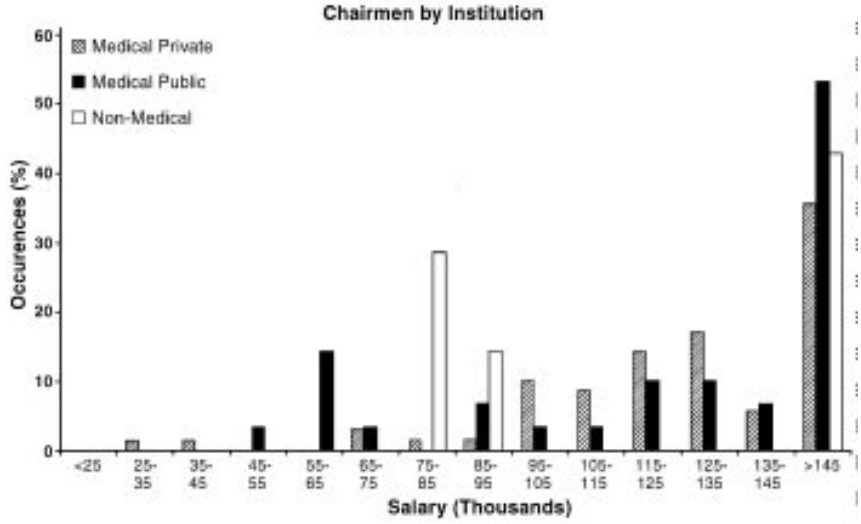
Midwest: MI, OH, IN, IL, WI, IA, MO, KS, NE, ND, SD, MN

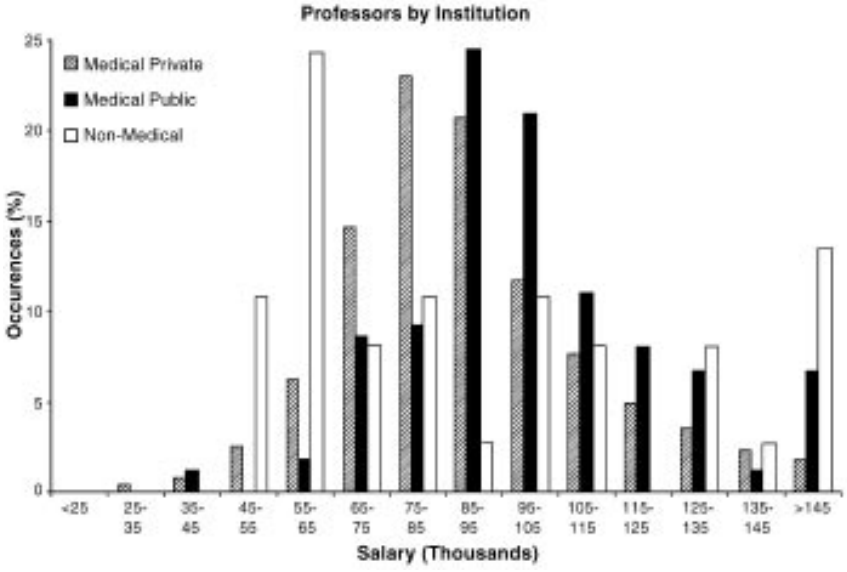
South: VA, WV, KY, TN, NC, SC, GA, FL, AL, MS, AR, LA, OK, TX

West: AK, HI, MT, WY, CO, NM, AZ, ID, NM, WA, OR, CA, UT

ACDP 1996 Survey Results







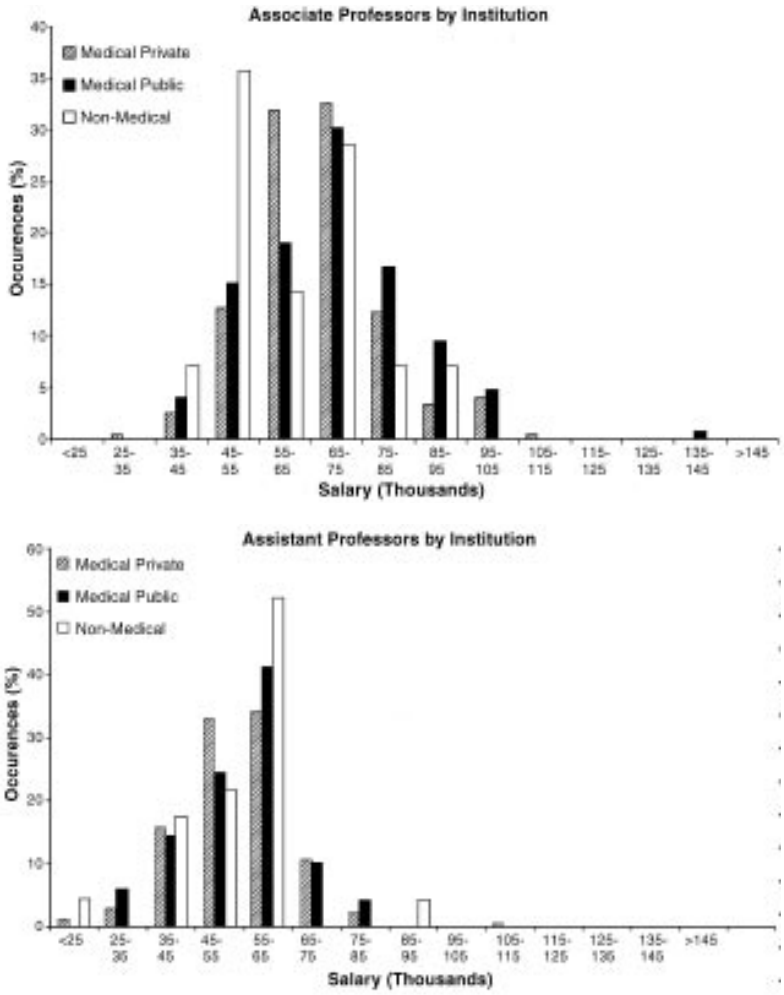


Table 4. Budgets by Institutions

	All Institutions	No.	Public Medical	No.	Private Medical	No.	Nonmedical	No.
Institutional	$1,274,962	108	$1,312,272	70	$1,250,484	32	$ 970,239	6
Outside research grants (direct costs only)	2,115,763	105	2,016,820	67	2,460,878	31	1,534,417	7
Training grants (direct costs only)	264,373	48	236,383	29	288,393	17	466,060	2
Endowments	188,621	45	241,125	30	85,641	12	75,498	3
Indirect recovery costs (amount to dept.)	105,157	53	96,485	45	233,316	5	21,640	3
Other budget support	247,124	52	241,586	38	262,158	14	0	0
Average	3,664,703	109	3,637,099	70	3,970,933	32	2,540,842	7
Standard deviation	2,335,891		2,239,601		2,459,490		2,335,217	

Financial Information

Percentage of total faculty salaries derived from research grants (not including fringe benefit amounts):	27.9%	(*n* = 87)
Current fringe benefit rate most frequently used for primary faculty:	24.3%	(*n* = 108)
Percentage of allocated faculty salary dollars raised from grants, etc., directly returned to your department:	73.1%	(*n* = 55)
Federally negotiated indirect cost rate for FY 96-97 on campus:	55.1%	(*n* = 102)
off campus:	32.0%	(*n* = 72)
Percentage of indirect costs returned to your department:	17.4%	(*n* = 47)

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. of Faculty
1	$13,660,354	1	$8,314,325	1	$692,860	36	18,681	1	$445	12
2	10,017,664	2	7,667,749	32	178,320	5	35,000	13	219	43
3	8,617,281	9	4,321,118	30	187,875	18	24,666	27	175	23
4	8,351,818	3	5,546,003	24	198,072	30	19,908	4	279	28
5	7,825,773	11	4,223,835	9	248,461	45	17,433	8	242	17
6	7,762,162	4	5,098,517	21	212,438	25	21,434	10	238	24
7	7,498,230	10	4,242,231	37	157,120	26	21,316	15	199	27
8	7,346,180	5	4,930,138	10	246,507	8	31,266	32	158	20
9	7,180,545	6	4,862,195	11	243,110	14	26,536	21	183	20
10	6,930,097	12	4,126,842	27	196,516	6	34,907	51	118	21
11	6,718,543	8	4,614,860	13	242,887	7	32,665	40	141	19
12	6,653,234	42	2,350,365	46	130,576	12	27,231	77	86	18
13	6,650,000	7	4,690,000	6	293,125	13	26,701	26	176	16
14	6,600,000	14	4,000,000	108	NR	3	40,000	64	100	NR
15	6,543,657	28	3,200,680	29	188,275	51	15,688	14	204	17
16	6,477,990	17	3,866,300	17	227,429	44	17,479	12	221	17
17	6,424,207	18	3,802,984	35	165,347	54	14,800	7	257	23
18	6,349,566	15	3,950,823	38	151,955	15	26,348	35	150	26
19	5,934,282	24	3,312,388	3	368,043	2	47,529	85	70	9
20	5,736,258	13	4,055,402	7	270,360	23	22,000	20	184	15
21	5,513,713	23	3,414,782	16	227,652	34	18,874	22	181	15
22	5,393,298	16	3,886,216	4	323,851	57	14,634	5	266	12
23	5,078,563	20	3,474,134	19	217,133	4	36,618	67	95	16
24	5,069,830	27	3,217,576	44	139,895	40	18,226	24	177	23
25	5,056,108	31	2,872,219	48	124,879	24	21,719	44	132	23
26	5,053,408	48	2,045,440	67	88,932	17	25,486	79	80	23
27	4,958,397	40	2,406,895	58	104,648	21	22,672	60	106	23
28	4,945,482	26	3,240,143	28	190,597	37	18,660	28	174	17
29	4,836,287	36	2,543,150	49	121,102	58	14,380	25	177	21
30	4,823,197	37	2,524,709	43	140,262	38	18,298	42	138	18
31	4,815,000	30	2,985,000	15	229,615	11	28,350	62	105	13
32	4,794,263	70	1,256,300	77	73,900	1	76,673	102	16	17
33	4,782,413	45	2,250,344	50	118,439	29	20,482	55	110	19
34	4,680,036	25	3,280,934	14	234,352	31	19,592	29	167	14
35	4,677,502	22	3,418,948	40	148,650	20	23,261	36	147	23
36	4,651,901	29	2,991,076	42	142,432	16	26,025	53	115	21
37	4,632,306	19	3,762,621	2	627,104	59	14,127	6	266	6
38	4,506,165	21	3,421,806	5	311,073	55	14,720	11	232	11
39	4,359,983	33	2,806,233	36	165,073	93	7,203	2	390	17
40	4,226,871	34	2,800,000	20	215,385	28	21,000	43	133	13
41	4,213,221	32	2,837,520	39	149,343	10	29,872	69	95	19
42	4,202,566	43	2,348,602	41	146,788	47	16,398	38	143	16
43	4,175,000	49	2,000,000	69	83,333	27	21,309	71	94	24
44	4,173,973	35	2,609,483	18	217,457	60	14,000	19	186	12
45	4,086,700	38	2,476,700	22	206,392	63	13,068	16	190	12
46	4,040,249	55	1,762,128	72	80,097	68	11,210	33	157	22
47	4,008,389	53	1,822,268	68	86,775	48	16,347	54	111	21
48	3,945,230	52	1,864,793	52	116,550	43	17,505	59	107	16
49	3,933,530	64	1,514,947	88	52,240	19	24,241	90	62	29
50	3,769,421	54	1,764,015	51	117,601	49	16,288	57	108	15
51	3,768,588	44	2,331,552	8	259,061	65	12,451	18	187	9
52	3,742,900	56	1,754,000	78	73,083	35	18,760	72	93	24
53	3,742,459	46	2,126,274	45	132,892	22	22,530	70	94	16
54	3,681,688	58	1,740,000	63	91,579	39	18,248	68	95	19
55	3,653,385	41	2,364,000	31	181,846	50	16,200	37	146	13

Table 5 (continued).

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. of Faculty
56	3,629,230	39	2,430,430	12	243,043	92	7,308	3	333	10
57	3,486,837	50	2,000,000	65	90,909	9	30,037	88	67	22
58	3,439,028	62	1,574,989	54	112,499	41	18,000	76	87	14
59	3,370,227	51	1,912,215	34	173,838	85	8,038	9	238	11
60	3,270,317	59	1,644,571	71	82,229	46	16,880	66	97	20
61	3,095,504	65	1,420,412	60	101,458	78	9,044	34	157	14
62	2,957,326	69	1,280,500	64	91,464	71	10,503	47	122	14
63	2,901,083	71	1,204,765	89	50,199	87	7,553	30	160	24
64	2,765,904	57	1,740,352	33	174,035	53	14,881	52	117	10
65	2,764,527	68	1,323,384	74	77,846	42	17,534	82	75	17
66	2,714,831	74	1,163,542	75	77,569	75	9,809	50	119	15
67	2,643,749	47	2,064,157	53	114,675	33	18,971	56	109	18
68	2,637,228	89	595,535	95	37,221	67	11,396	92	52	16
69	2,464,748	61	1,578,506	26	197,313	56	14,668	58	108	8
70	2,410,822	60	1,579,009	25	197,376	62	13,316	49	119	8
71	2,350,446	67	1,330,033	59	102,310	76	9,567	41	139	13
72	2,349,545	72	1,188,642	56	108,058	66	12,000	65	99	11
73	2,336,469	73	1,171,861	66	90,143	96	6,565	23	179	13
74	2,325,624	77	1,091,142	73	77,939	73	10,257	61	106	14
75	2,321,960	75	1,141,881	47	126,876	94	7,193	31	159	9
76	2,304,369	66	1,411,207	23	201,601	52	15,563	73	91	7
77	2,283,195	76	1,101,177	61	100,107	64	12,640	75	87	11
78	2,254,338	63	1,557,347	55	111,239	82	8,350	17	187	14
79	2,242,000	87	600,000	90	46,154	79	9,000	87	67	13
80	2,166,920	90	586,606	91	41,900	84	8,131	83	72	14
81	2,071,707	88	597,208	94	37,326	80	8,526	84	70	16
82	2,005,000	78	1,071,000	70	82,385	69	10,550	63	102	13
83	1,958,771	79	965,344	76	74,257	90	7,379	45	131	13
84	1,937,177	80	916,694	83	61,113	91	7,352	46	125	15
85	1,753,599	81	853,739	84	60,981	72	10,459	78	82	14
86	1,653,473	99	229,607	100	16,401	83	8,264	100	28	14
87	1,559,849	86	619,351	79	68,817	74	9,860	89	63	9
88	1,497,130	94	336,293	98	28,024	101	3,799	74	89	12
89	1,457,280	95	308,504	97	30,850	97	6,190	93	50	10
90	1,375,151	97	276,953	96	34,619	89	7,433	98	37	8
91	1,294,573	85	654,164	62	93,452	99	4,615	39	142	7
92	1,256,886	98	239,847	92	39,975	95	6,700	99	36	6
93	1,250,117	84	668,124	81	66,812	61	13,838	94	48	10
94	1,184,484	91	536,721	57	107,344	100	4,480	48	120	5
95	1,125,658	106	3,880	105	353	86	8,000	107	NR	11
96	1,112,048	93	338,083	80	67,617	77	9,112	97	37	5
97	1,088,551	83	720,317	87	55,409	32	19,030	96	38	13
98	1,058,920	92	384,148	82	64,025	98	4,880	80	79	6
99	984,032	100	226,501	93	37,750	81	8,483	101	27	6
100	923,269	107	NR	106	NR	88	7,450	105	NR	11
101	910,000	82	800,000	85	57,143	110	NR	108	NR	14
102	890,846	105	17,250	104	2,464	70	10,545	104	2	7
103	846,577	96	280,000	86	56,000	102	3,741	81	75	5
104	644,294	101	128,000	99	21,333	106	1,900	86	67	6
105	617,819	110	NR	110	NR	108	600	110	NR	4
106	454,516	103	50,000	102	10,000	103	3,527	103	14	5
107	431,594	108	NR	107	NR	104	3,240	106	NR	4
108	354,747	104	25,000	103	6,250	109	450	91	56	4
109	268,700	102	54,700	101	13,675	107	1,200	95	46	4
110	76,000	109	NR	109	NR	105	3,000	109	NR	4

(continued from page 49)

and it is important to continue these efforts. We are fortunate to possess considerable financial assets, and the Society has had an outstanding record of sound management and leadership. The Council has been attentive to the needs of our membership, and we have had a long line of outstanding presidential leaders. We have also been very fortunate to possess an unsurpassed Executive Director, Martin Frank.

I first wanted to emphasize these many positive aspects about our Society (detailed in many of the past issues of *The Physiologist*) because it is important to recognize that we are a vital and evolving Society and have responded effectively to many of the important issues that have faced us over the past decade. This being said, I would now like to focus my attention on what I consider to be a serious problem and the greatest current challenge to APS: specifically, improving the vitality of our scientific meetings! The underlying strength of every scientific society resides in its ability to sponsor meetings at which the best and most exciting new discoveries are presented. At the present time, much of this science is presented elsewhere. I believe that this contributes in large measure to the very slow growth of young regular memberships in APS compared with the rapid growth in membership of a number of other organizations. My goal as President of APS is to develop and implement strategies that will revitalize our scientific meetings and make them *the* place to be and to be heard!

APS programming: recent improvements

Of all of the strategic goals set forth at our 1992 retreat, we have been the least successful in strengthening our scientific meetings. It is not as if attention has not been given to this problem. Various aspects of our scientific meetings have been a major focus of the APS leadership over the past four years (2–5). Each of our presidents has addressed in various ways this issue and has invested considerable energy and resources in the revitalization of our scientific meetings. The Society has developed the APS Conference venue, which provides for small scientific meetings related to topics of focused interests. We have developed an excellent Distinguished Lectureship Series, whereby APS sections select and honor a speaker of their choice. We have developed a Physiology InFocus component of the spring Experimental Biology (EB) meeting in an effort to carefully orchestrate an outstanding segment of the EB meeting that cuts across disciplinary interests. We have initiated a process to hold program time for the inclusion of "hot topics symposia" to accommodate the most recent and rapidly developing science. Yet, by many measures, our scientific meetings are not flourishing, and in this sense APS is not poised to capture the "bright future of physiology."

What is ailing our scientific meetings?

It should first be emphasized that the Program Committee is *not* at fault in this issue; it is the *process* that is to blame. The dedicated APS committee under the outstanding leadership of Ethan Nadel works tirelessly to organize the best meetings possible. The time and effort expended behind the scenes by these members of our Society are extraordinary, and they deserve only our greatest appreciation and thanks. For this reason, it is difficult to be critical of the quality of our meetings. Nevertheless, our meetings are ailing, and we must examine the reasons.

One of the reasons appears to be generic. Many of the traditional discipline-based societies have been struggling to carry on "generalist" type meetings in the face of a world of "reductionism." Although the results of the recently conducted APS survey of its members indicate that the size and breadth of the EB meetings are not a major concern, there is a serious concern that these meetings are currently not attracting high-quality science in many areas of research. Many of the problems related to APS meetings are, however, nongeneric and specifically related to the process of scientific programming within APS.

Part of the problem over the past decade has been related to rapid advancements in cell and molecular biology and the inertia involved in integrating this research. In many areas of research, however, our Society has made good progress toward integrating the deluge of information derived from the molecular revolution. Yet, over the past decade APS meetings have not reflected the enormous excitement and success that physiology as a discipline has achieved. The excitement of the new discoveries published by our APS journals and those of other societies is often not reflected at our scientific meetings. Many well-known senior scientists come to our spring meeting (EB) for a brief period of time, when invited to present a symposium talk or a Distinguished Lectureship or participate in the Physiology InFocus program. However, more often than not, they do not remain to listen and participate in other scientific aspects of the program. In too many cases, they present their newest and most interesting data at other meetings. Exciting new discoveries that are often published in our APS journals are not presented first at our scientific meetings. There are a large number of authors in our APS journals who are not APS members and who do not attend our meetings, except as paid and invited speakers. The same can even be said of many members of the editorial boards of our APS journals, a number that has climbed to approximately 280 of 1,000 members.

How can we get this outstanding group of non-APS scientists, which represents nearly 30% of the members of our editorial boards, to attend and present their science at our meetings and become excited enough to join our Society? There is obviously a large new generation of graduate students and young scientists within physiology departments

who do not find it exciting to present their best new data at APS meetings. This is clearly the case within my own department, where less than half attend APS meetings. This means that our scientific meetings are not serving the needs of much of the current physiological research in this country. We must do everything possible to rectify this.

Does it matter? Yes, enormously! I believe that it represents *the survival* of APS as a *scientific society*. If our meetings do not provide an exciting environment for the emerging generation of physiologists, other organizations will evolve to fill the need. If the APS of the 21st century is to remain a strong scientific organization, we must provide scientific meetings that attract the best and the brightest in our ranks. APS cannot depend only on publishing, education, political advocacy, and "perks" to attract new members.

The role of any meaningful scientific society is the exchange of ideas and the nurturing of young scientists. This occurs through scientific meetings. Good scientists will create new societies to meet their own needs if the existing organizations fail to do so. The Publications Committee and our distinguished group of APS journal editors have achieved a level of excellence of which we can be proud. We must recognize that the same cannot be said of our scientific meetings. If APS is to capture the bright future of physiology, changes must be implemented in our programming that will allow our Society to regain a position of scientific leadership. APS has the resources and a professional organization in place to accomplish this task.

Our golden opportunity

The "bright future" envisioned for our discipline is based on the convergence of a number of events. First, there is an emerging recognition for the need to synthesize and integrate the enormous amount of scientific information that is currently available. There is, indeed, increasing pressure from our clinical colleagues and the medical educational establishments that this occur. There is even growing pressure related to these issues from informed lay persons and their political representatives.

Most importantly, molecular biologists, who have experienced two decades of unparalleled achievements, increasingly recognize that this information must now be bridged to higher levels of function to be relevant. Conversely, physiologists also recognize that their own future relevance depends on their ability to achieve an understanding of integrative function based on knowledge of the molecular, genetic, and subcellular level of function. Many, if not most, have now embraced and assimilated the cell, molecular, and technological revolutions and are attempting to achieve a deeper understanding of the molecular basis of both cellular function and the interplay between cells, tissues, and organs. This has been reflected in our APS symposia, as emphasized in the 1996 Long Range Planning Committee report, "Out of some 30 APS symposia held each year, only three in the five-year period 1982-1986 had the word 'molecular' or 'genetic' in the title. This number rose to 16 in 1987-1991 and to 26 in 1992-1995" (4).

As a consequence of the maturation of molecular biology and genetics, there has rapidly emerged an increasing availability and utilization of transgenic animal models and of the technologies for gene targeting and of gene transfer. These technologies, for the first time, offer physiologists the opportunity to bridge the function of genes from the level of the cell to the whole organism.

The most exciting current event that portends a bright future for physiology is related to the next revolution into which physiologists will soon be thrust, based on the explosion of data emerging from the Human Genome Project and other genome projects. It is apparent that our research must now be directed beyond merely understanding the proteins that these genes express. It is now imperative to understand the function of genes at the level of the cell, organ, and whole animal function. Several editorials in *The Physiologist* and elsewhere have recently addressed this issue.

Francis Collins, Director of the National Center for Human Genome Research at NIH, stated at his 1996 APS Physiology InFocus lecture that, "It is rapidly becoming evident to the world community of molecular biologists and geneticists involved in mapping and sequencing of genes that the next important phase of scientific development must be directed toward the understanding of the functional expression of these genes and the study of the physiological systems under the control of these newly discovered nucleotide sequences (genes). The functional relevance of many of the genes will have to be studied in a variety of experimental animal models in order to understand their function and relevance in both normal and pathological states" (4).

The immediacy of these challenges is emphasized by the realization that the completion of the Human Genome Project is rapidly approaching and that by the year 2002 both mapping and sequencing of the nearly 100,000 genes in the human genome will be completed. The challenge proffered by Claude Lenfant, director of the NHLBI, in an editorial from this journal captured the essence and importance of this task. Lenfant said, "The physiologist is at the threshold of an unprecedented scientific era. To him or her will fall the task of making sense of the bits and pieces of new knowledge that are so rapidly accumulating … This is the challenge — and the privilege — of today's integrative physiologist" (2).

These events of science clearly provide the physiologist and APS with a golden opportunity. There is little doubt that there will be a rapidly emerging need for well-trained integrative physiologists in the very near future. What is not clear, however, is how many of these physiologists will emerge from the membership of APS or even become members of APS. If our Society moves quickly to develop scientific programs that can bring together those scientists engaged in these new activities, we could once again be at the

forefront of science. I believe APS is presently at one of the most important crossroads in its long and illustrious 110-year history. Can we respond to this enormous challenge and make the future of APS as bright as the discipline of physiology? I believe that we can, and it is my goal to position APS to take immediate advantage of the opportunities that the revolutions in molecular biology and genetics have provided for the world of the 21st-century physiologist.

What should be the APS programming goals?

Given the role of physiology to synthesize the detailed physical, molecular, and chemical factors that determine the functions of the living organism into an organic whole, APS programs should reflect this ultimate goal. However, we should not lose sight of the reality that, as a necessary part of discovery, the work of most of today's investigators is focused on only one small piece of the system at any given time. It must be appreciated that the discovery of these small elements is as important and challenging as are the efforts to achieve an integrated understanding of systems. If we are to expect the reductionist-oriented young scientists to participate in APS scientific meetings and other activities, we must provide venues that enable them to interact with each other and to experience the excitement of challenging each other's ideas and results. Not every scientific session, symposium, or program of APS should attempt to view a subject at all levels of biological function, as is currently the goal of all APS symposia and conferences. Albeit a laudable goal, such synthesis is unrealistic in emerging areas of science until sufficient data and appropriate technologies have developed to build these bridges. We must provide programming venues that satisfy those investigators focused solely on the smallest scale of biological function. At the same time, we must encourage and provide programs for those who are involved in integrative function at all levels. We must have a process that is very nimble and responds quickly to new areas of research. We cannot survive with a process that is largely designed to preserve interests of the status quo.

Scientists need an environment in which they can effectively meet and interact with each other. This is undoubtedly why small (100-500), well- focused, highly interactive meetings, such as the summer FASEB conferences or Gordon conferences, etc., are very attractive to so many of us. It is clear from the relative proliferation of small "specialty" meetings and the atrophy of large "generalist" meetings that it is important for most scientists to attend a highly focused speciality meeting. This is where their work receives the greatest peer scrutiny and where young investigators can meet and comfortably discuss their work with established investigators. Yet, it also appears that most of us appreciate the value of both types of meetings and will continue to attend at least one large interdisciplinary meeting if high-quality science is maintained.

There is no reason why there cannot be high-quality, in-depth, speciality-type meetings mixed within larger society and intersociety meetings and within the context of both broad as well as highly focused integrative topics. Indeed, this was in part the idea of the so-called "theme" programs of the EB meeting, but the themes have been vague and not well focused so they have not generated very stimulating meetings.

There is no reason that APS could not mobilize its considerable resources and develop an annual meeting venue that would satisfy both of these objectives while also building and strengthening the opportunities that currently exist for APS conferences. Such programs should provide opportunities for scientists in emerging, new areas to participate importantly in the development of the style and content of the meetings. Most importantly, it is imperative that we find a *process* for programming that is more responsive to the expectations and needs of a currently disenfranchised group of well-funded cell and molecular physiologists. Within this context, we can and should continue to encourage and support meetings that provide the interdisciplinary matrix of organ and organism physiologists with whom those working at the molecular level can interact. It is this important mix of elements that is currently not present in our programming and that we must capture if we are going to integrate the recent conceptual revolutions derived from a deeper understanding of the molecular and cellular basis of function.

Clearly, one of the major frustrations of modern science is its fragmentation and the sense that a single professional society cannot contain the full range of expression of scientific interests. It is apparent that APS cannot be all things to all people and that there will remain a need for a variety of different professional societies. However, APS has defined a unique goal of achieving an integrated understanding of normal whole body function. Because the vast majority of NIH- and NSF-funded investigators are engaged in research that many of us would traditionally define as highly reductionist in nature, we have been at odds with this dilemma for some time. This dilemma is needless in my mind. The golden future of APS resides in our ability to provide scientific meetings that will be exciting for both ends of the spectrum of science. Without all of these players at the APS table, how can we expect to achieve an integrated understanding of biological function? APS has to some extent addressed these issues with the creation of the APS conferences and the Physiology InFocus themes, but these have been top-down efforts by Council. APS sections have not played a strong supporting role in helping to strengthen the depth of science at EB meetings, nor initiated a sufficient number of APS conferences.

Current programming and obstacles to overcome

I do not underestimate the complexity and challenges of creating outstanding scientific meetings, particularly annually recurring meetings. Yet, it is impossible for me to believe that a society as important and as well run as APS cannot overcome the inertia of our system and develop some bold and creative initiatives. In order to understand some of the obstacles that must be overcome in our scientific programming, it is first necessary to have at least a general understanding of the current machinery driving this process. In addition, it is important to recognize some of the changes that have already been recently recommended and implemented.

The Program Committee is composed of five members proposed by the Committee on Committees and approved by Council. It has ultimate responsibility for approving and recommending to Council all aspects of APS scientific programming. The major job of the Program Committee has been to create a fair balance of symposia, which are proposed by the 12 APS sections and 5 special interest groups. Members are invited to submit proposals for symposia through their sectional affiliations. The elected representatives from each section (one per section), usually accompanied by an apprentice member to provide continuity, comprise the Program Advisory Committee (PAC). This large and unwieldy group presents its recommendations to the APS Program Committee. The Program Committee ranks the quality of the proposals and attempts to create a sectional balance of representation with at least one symposium per section for the EB meeting of the following year.

A representative from the Program Committee later meets with representatives of the other societies participating in the EB meeting to define the "integrating themes" for the following annual meeting. The other important programming responsibility that APS sections are solely responsible for is the selection of their Distinguished Lecturers. There is also an annual call for APS Conference topics in which any Society member or nonmember is encouraged to organize and propose a conference. Organizers are provided with $25,000 in speaker support, and APS pays for the management of the conference. It is encouraged that these proposals be submitted under the auspices of one or more sections or special interest groups of the Society, and a multidisciplinary approach is encouraged. Each proposal is scored and ranked again by the APS Program Committee and ultimately approved by Council.

In brief, EB symposia and APS conferences are therefore initiated by APS members through their traditional sectional affiliations. Because of the desire to incorporate more timely and focused sessions into our meetings, Council has initiated some efforts over the past several years to enhance the quality of our programs (the top-down approach). The Physiology InFocus Program was initiated, whereby the APS President-elect selects a scientific subject of broad interest and chooses an individual of world renown to develop a program within the APS program at EB. Outstanding speakers are then invited to address the theme from the molecular to the clinical level. In addition, "hot topic" symposia are programmed six months prior to the meeting.

The remainder of the APS scientific program is developed around the submission of abstracts ("free communications"), which are scheduled according to topic categories created by the sections and the various PAC representatives. All submitted abstracts are accepted and presented either as oral communications or posters.

So why is all of this not working? First, let me say that some things are working! On the positive side, anyone who attended the Physiology InFocus Program at the EB meeting in Washington, DC, was treated to an outstanding series of lectures and will be treated to the same this spring in New Orleans during the five half-day sessions organized by William W. Chin of Harvard Medical School on "Cell Signaling: Multiple Pathways, Integration, and Cross Talk." In addition, the Distinguished Lectures have been outstanding, as have been the other special award lectureships such as the Cannon and the Bowditch Lectureships.

On the negative side, although some sectional symposia have been outstanding, a number of them have not, and this represents a major weakness. It reflects on the sections who propose these symposia, which I will address below. The second major weakness, which reflects on the general membership participation, is the general quality of the free communications at EB meetings. Some, of course, are outstanding, but, once again, I emphasize that this traditional part of our meeting is failing to attract the best and most current of science. In brief, it appears that when the Society "buys" the time of outstanding scientists to appear for the invited lecture, we are treated to an excellent review lecture. Yet, it is evident that many or most of these scientists have not presented their original work at our meetings. Therein lies that problem with our meetings!

This returns to the question of why. What are the present obstacles we must overcome to improve APS programming? Perhaps the largest issue we must face is related to the role of the APS sections in the process of programming. The historic sectional divisions of the Society based on 19th and early to mid-20th century organ systems approach to physiology teaching have served and continue to serve APS well in some ways but not in programming. These sectional divisions of the Society were reinforced by changes in the 1980s to our governance procedures, which provided representation to the elements of physiology that had previously been disenfranchised with regard to APS governance activities. Specifically, Councillors were henceforth nominated by sections from lists developed by the general membership.

As greater control of APS flowed to the sections, so did responsibilities for programming. This has not worked well for a variety of reasons. First, there remains a considerable imbalance in the size, quality, and leadership between the 12 sections. Some of the sections have

Introducing … Allen W. Cowley, Jr.

Allen W. Cowley, Jr. was appointed as professor and chairman of the Department of Physiology at the Medical College of Wisconsin in 1980. He completed his PhD degree training in physiology in 1968 with John Scott at Hahnemann Medical School in Philadelphia, Pennsylvania. He then joined Arthur Guyton at the University of Mississippi Medical Center and completed his postdoctoral training in 1970. He continued in that department and was promoted to full professor in 1974. He was visiting professor of physiology at Harvard Medical School in 1974 and 1975, working with Clifford Barger and Claude Lechene.

The central theme of most of his research has been related to the study of renal and vascular mechanisms involved in the long-term control of arterial pressure. His early work on the baroreceptor reflexes in dogs demonstrated that although the baroreceptors participated importantly in the short-term stabilization of arterial blood pressure, they did not determine the long-term set point around which arterial pressure oscillated. He pioneered the use of continuous, 24-hour recording techniques coupled with computer averaging to quantify long-term average levels of arterial blood pressure and demonstrated that sinoaortic baroreceptor denervation did not alter the average level of blood pressure. His work with the renin-angiotensin system was the first to quantitate the ability of the system to normalize changes in arterial pressure by determination of the open-loop feedback gain of this control system.

Redirecting his studies related to the role of vasopressin and the regulation of vascular tone, he demonstrated that small, physiological increases of circulating arginine vasopressin could exert potent, systemic vasoconstrictor effects in the absence of the baroreceptors reflexes. He then characterized the open-loop feedback gain of this pressure control system and demonstrated that vasopressin was an important short-term controller of arterial blood pressure with a feedback gain equivalent to that of the baroreceptor reflexes and the renin-angiotensin system.

Much of Cowley's work has revolved around mechanisms involved in the long-term control of sodium and water balance and the long-term control of arterial blood pressure in chronically instrumented dogs and rats. Much of his work has focused on achieving an understanding of the relationship between body fluid volume and arterial pressure regulation and the integration of these two elements. Studies in his laboratory and his collaborations uncovered the mechanism of pressure-natriuresis and directly demonstrated that this mechanism is reset in every form of hypertension yet studied. Studies in his research program have shown the mechanisms whereby a reduction of renal function and volume expansion leads to an increase in systemic vascular resistance via local autoregulatory responses. His work established that chronic elevations of blood volume as small as 5% result in locally induced increases of vascular resistance and hypertension in the presence of reduced renal function.

His most recent research has focused on the role of the renal medulla and the consequences of changes of medullary blood flow to this region on sodium excretion and arterial blood pressure and on searching for regions on the rat and human chromosomes that segregate with the physiological pathways that determine arterial blood pressure (quantitative trait loci) using human subjects and inbred lines of rats. The applications of molecular genetics to the understanding of physiological function represents the central theme of most of his current research.

Cowley has authored more than 170 publications and has contributed chapters to 30 books. He has been an active member of the American Physiological Society since 1972, serving as Councillor for the Society for five years, chairman of the Water and Electrolyte Homeostasis Section, and secretary of the Cardiovascular Section. He has also served on the executive councils of several other scientific societies, including the American Heart Association (AHA) Council for High Blood Pressure Research, the AHA Basic Science Council, and the Inter-American Society of Hypertension. He has served as chairman for the Council of High Blood Pressure Research of AHA and as president of the Association of Chairmen of Departments of Physiology. He has served on numerous NIH study sections and has served on more than 10 editorial boards, including three journals of APS.

Cowley is currently the director of the NIH Specialized Center for Hypertension Research at the Medical College of Wisconsin, which has as its emphasis on the search for genes responsible for high blood pressure. He is the director of a NIH training grant in high blood pressure research and, throughout his career, has trained more than 30 postdoctoral fellows and students. He recently received the Distinguished Achievement Award of the Scientific Councils of the American Heart Association, and he was the 1996 Ernest H. Starling Distinguished Lecturer of the APS Water and Electrolyte Homeostasis Section. ❖

taken the programming activities seriously, and others have not. Sections that are weak propose programs that are weak, which does not attract good, young investigators to the meeting. Second, initiation of programming largely through the sections reduces the opportunities of young investigators, who do not fit into any of the traditional organ system sections, for meaningful participation in APS meetings. Third, at the present time, APS sections are more historically based than scientifically driven. As many of the distinguished figures of the APS sections have departed, so too have the scientific bonds and collegiality that made many of these sections exciting and fun places to gather. For the same historical reasons, NIH funds research largely through organ-/disease-based institutes (i.e., sections), although if one looks at research currently being funded, it is evident that fundamental research can no longer be defined easily along the lines of our traditional APS sections. If APS meetings largely reflect these historical divisions, how can we expect young, new investigators to be attracted to our sections or meetings oriented largely around sectional interests? Fourth, there are structural and organizational inefficiencies that the sectionalization of our programming has created, as may be perceived by the description of the process summarized above. This, in itself, is important to understand, because no matter how we try to improve the process, these structural and planning issues must be carefully considered.

Another very major issue that must be addressed is our inability to attract enough of the really good and exciting science being done in the areas of cell biology and molecular genetics. In my mind, this is the single most distressing problem with our annual spring meeting. This needs to be acknowledged, and the reasons for this need to be examined. As with most systems, we will probably find many interacting feedback loops that we will need to work through. Some of these may be "positive feedback controllers," which produce vicious cycles. For example, some investigators feel disenfranchised and uncomfortable as part of one of our traditional sections, so they attend speciality meetings sponsored by their closest peer interest group. The departure of this interest group from the APS meeting further weakens the image of APS and other interest groups left to exist comfortably as a big fish in a small pond. Clearly, the story is more complex than this, but we must begin to understand these dynamics and respond in ways that will return "free communications" of original research back to a high level of excellence.

Related to these issues, we must consider whether we should initiate a review process for submitted abstracts for some or all portions of the APS meeting. Although there is nothing inherently wrong with nonreviewed "free communications," as seen by the successful FASEB meetings of years ago, for this to produce high-quality meetings, the best and the brightest must also be submitting their abstracts for presentation. If they are not doing so, it suggests that we are not providing an environment (and an audience) in which they want to present their work. The earlier mechanical failures based on the rapid processing of many submitted abstracts have been largely overcome by the age of computers, and now this process runs remarkably well. It remains a problem, however, for the investigators to know which predefined "box of interest" to check, which assigns the session in which the paper will be placed. The topic categories are presently unwieldy and redundant and lack many topics of current importance and interest to young investigators. This represents a serious problem. The "boxes of interest" and "cross-cutting topics" for inter- and intra-society planning are in large measure driven by the status quo of both the APS sections and members of our sister societies. Although members are encouraged to make suggestions, it is only with much time and energy that nontraditional groupings develop themes within APS meetings and especially EB meetings. The EB meetings are thereby created ad hoc with little prior structure in mind beyond the very general "cross-cutting topics" that only vaguely define common interests of the sections and the participating societies of the EB meetings.

What should be done to improve APS scientific meetings?

I have presented thoughts about the quality of our meetings and some of the problems that I believe represent obstacles to improving our meetings. I believe that these problems need to be more precisely defined and changes made in the APS organizational and operational structure to provide new and exciting opportunities for young scientists who do not readily fit or support the old divisions of the Society based on the current sections. The science being done is largely interdisciplinary; however, our meeting is programmed around organ systems as driven by our traditional sections. To make the programming even more cumbersome, APS attempts to also satisfy the broad needs of other EB societies at the spring meetings. APS is the largest, strongest, and best financed society within the EB meeting and can provide the leadership for any changes that may be necessary to improve the quality of our meetings. It is the present feeling that APS should continue to meet with other societies. Although, if we continue to do so, we must provide strong and independent leadership to first improve the quality and identity of our own APS scientific sessions.

Without changes, neither the EB meetings nor the APS meetings will flourish. This process of change must be and will be the result of considerable thought and planning over the next year. I propose that the issue be addressed in two ways. First, I shall appoint a Blue Ribbon Committee comprised of respected APS and nonmember scientists to advise Council on how to proceed with the modernization and streamlining of the process for scientific programming within the Society. Second, this will be coordinated with a Council retreat to consider all recommendations and develop a consensus

on how to proceed. There are obviously many issues that must be addressed, not the least of which is the role of the sections in programming. I am certain that, in the best interests of physiology and in the best interests of APS, we will rise above the sectional divisions of our Society and forge a new process to provide exciting scientific meetings for our current members and meetings that will attract the physiologists of tomorrow. ❖

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Merck Research Laboratories to Support Minority Program

Merck Research Laboratories has contributed $100,000 ($20,000/year for 5 years) to APS and its Porter Physiology Development Program to help encourage the participation of minority students in the physiological/biomedical sciences. Because of the generosity of Merck Research Laboratories, one of the Society's Porter Fellows will now be designated as a Merck Fellow.

The Porter Physiology Development Program has been encouraging minority students since its inception in 1965. Between that time and 1995, the program has supported 75 predoctoral and 16 postdoctoral fellows for graduate/postdoctoral training in physiology. This has been accomplished through one-year predoctoral and postdoctoral fellowships that can be extended for additional years, summer internships for undergraduate students to experience research in physiology, and collaborative programs between institutions with mainly minority and majority populations.

Despite the success of the Society's Porter Physiology Development Program and the contributions of companies like Merck Research Laboratories, much work still remains to bring the numbers and percentages of minority students earning degrees in the life sciences, and especially in physiology, to the levels aspired to by the Society. In the past 10 years, the percentages of African Americans and Hispanics earning bachelor's degrees have changed little. While the number of African Americans and Hispanics enrolled in graduate studies in physiology have increased in the past 10 years, they still remain only 4% and 2%, respectively, of the graduate student population. Of the biological science doctoral degrees awarded between 1981 and 1992, African-Americans, Hispanics, and Native Americans as a group increased from 2.8% to 4.7%, an encouraging trend but one that still leaves much room for improvement.

The Society is very appreciative of Merck Research Laboratories donation to the Porter Physiology Development Program. They join the Procter & Gamble Company, the William Townsend Porter Foundation, and the Society and its members in the campaign to encourage increased participation of minorities in the field of biomedical research. ❖

APS Election Results

L. Gabriel Navar, Professor and Chair, Department of Physiology, Tulane University School of Medicine, is the new President-Elect. The two newly elected Councillors taking office on April 10, 1997, for three-year terms are **Dale J. Benos**, Professor and Chair, Department of Physiology and Biophysics, University of Alabama at Birmingham; and **Richard J. Traystman**, Distinguished Research Professor and Vice Chairman of Research, Department of Anesthesiology and Critical Care Medicine, Johns Hopkins University School of Medicine. ❖

President-Elect

L. Gabriel Navar

Councillors

Dale J. Benos

Richard J. Traystman

Frazier Receives 1997 Arthur C. Guyton Teacher of the Year Award

Donald T. Frazier, Professor of Physiology and Bioengineering, and Director of the Outreach Center for Science and Health Career Opportunities, University of Kentucky, Chandler Medical Center, Lexington, KY, was selected as the 1997 Arthur C. Guyton Physiology Teacher of the Year. The award is given for documented excellence in teaching both in and out of the classroom, and for a demonstrated commitment to physiology education. W. B. Saunders Company sponsors the award, which consists of a certificate, a cash award of $1000, and funds to defray some of the expense of attending the meeting.

The award will be presented in conjunction with Frazier's talk on an aspect of physiology teaching or education on Sunday, April 6, at 6:30 pm in the Jasperwood Room of the New Orleans Hilton. This will allow the high school teachers from the APS Frontiers in Physiology summer research program to attend.

The Award Selection Committee consisted of **Lois Heller** (chair), Michael Johnson, and **Heinz Valtin**, **Bruce Koeppen**, and **Barbara Horwitz**, the recipients of the award in 1994, 1995, and 1996, respectively. ❖

Donald T. Frazier

AMERICAN PHYSIOLOGICAL SOCIETY

CONFERENCES

The Physiology and Functional Diversity of Amiloride-Sensitive Na^+ Channels: A New Gene Superfamily

October 29 - November 1,1997 • Park City, UT

Experimental Biology '98

April 18-22, 1998 • San Francisco, CA

Endothelial Regulation of Vascular Tone: Molecular to Integrative Physiology

September 16-19, 1998 • Augusta, GA

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

December 5-9, 1998 • San Antonio, TX

Please send me program and registration information for the following APS Conferences:

- ❑ ***The Physiology and Functional Diversity of Amiloride-Sensitive Na^+ Channels: A New Gene Superfamily***
- ❑ ***Experimental Biology '98***
- ❑ ***Endothelial Regulation of Vascular Tone: Molecular to Integrative Physiology***
- ❑ ***The Paraventricular Nucleus of the Hypothalamus: A Crossroads of Integrative Physiology***

Name _____

Department _____

Institution _____

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Country _____

Phone _____ **FAX** _____

E-mail _____

Mail to: *The APS Conference Office, The American Physiological Society, 9650 Rockville Pike, Bethesda, Maryland 20814-3991, USA*

Or fax your request to 301-571-8313.

1997 APS Conference

The Physiology and Functional Diversity of Amiloride-Sensitive Na^+ Channels: A New Gene Superfamily

October 29–November 1, 1997 • Park City, UT • Olympia Park Hotel

ORGANIZERS:

Dale J. Benos
University of Alabama at Birmingham
Bernard C. Rossier
Universit de Lausanne

STEERING COMMITTEE:

Douglas C. Eaton
Emory University School of Medicine
Lawrence G. Palmer
Cornell University Medical College
Bruce Stanton
Dartmouth Medical School
David G. Warnock
Division of Nephrology-UAB

Deadlines: Abstracts **June 13, 1997**
Advance Registration **September 15, 1997**

PROGRAM

WEDNESDAY, October 29, 1997

Welcome
Meeting Overview
Dale Benos, Birmingham, AL**,** and **Bernard Rossier,** Lausanne, Switzerland

Ion Channels: Evolution and History
Ramon Latorre, Santiago, Chile

The ENaC Family
Barbara Grubb, Chapel Hill, NC
Cecilia Canessa, New Haven, CT; **Laurent Schild**, Lausanne, Switzerland; **Peter Snyder**, Iowa City, IA; **Bernard Rossier**, Lausanne, Switzerland; **Edith Hummler**, Lausanne, Switzerland; **Richard Lifton**, New Haven, CT; **Catherine Fuller**, Birmingham, AL

THURSDAY, October 30, 1997

Na^+ Channels in the Kidney
James A. Schafer, Birmingham, AL
Larry Palmer, New York; **Brian Ling**, Atlanta, GA; **Nicolette Farman**, Paris, France; **Bruce Stanton**, Hanover, NH; **Matt Breyer**, Nashville, TN; **Steven Ernst**, Ann Arbor, MI

Regulation of Na^+ Channels
Dennis Ausiello, Boston, MA
Haim Garty, Rehovet, Israel; **Sarah Sariban Sohraby**, Brussels, Belgium; **Nick Johnson**, Pittsburgh, PA; **Horacio Cantiello**, Boston, MA; **Iskander Ismailov**, Birmingham, AL

FRIDAY, October 31, 1997

Socratic Debate: How Does cAMP Regulate Na^+ Channels?
Dennis Brown, Boston, MA
Francois Verrey, Zurich, Switzerland; **Peter Smith**, Philadelphia, PA

Socratic Debate: Are Amiloride-Sensitive Na^+ Channels in Nonepithelial Systems the Same as Those in Epithelia?
Mortimer Civan, Philadelphia, PA
James Bubien, Birmingham, AL; **Doug Eaton**, Atlanta, GA

Na^+ Channels in the Lung
Pierre Barker, Chapel Hill, NC
Pascal Barbry, Nice, France; **Hugh O'Brodovich**, Toronto, Canada; **Sadis Matalon**, Birmingham, AL; **Jackson Stutts**, Chapel Hill, NC; **Y. Berthiaume**, Montreal, Canada; **Colleen Talbott**, Chapel Hill, NC; **Sandra Guggino**, Baltimore, MD; **William Guggino**, Baltimore, MD

SATURDAY, November 1, 1997

Sensory Transduction and Amiloride-Sensitive Cation Channels
Bernd Lindemann, Homburg, Germany
Carole Hackney, Keele, UK; **Sue Kinnamon**, Ft Collins, CO

Mechanosensitive Ion Channels
Cathy Morris, Ottawa, Canada
Ching Kung, Madison, WI; **Martin Chalfie**, New York; **Monica Driscoll**, Piscataway, NJ; **Mouhamed Awayda**, New Orleans, LA; **Jean-Michel Achard**, Paris, France

Na^+ Channels and the Cytoskeleton
Fiona McDonald, Wellington, New Zealand
Adrianna Prat, Boston, MA; **Daniela Rotin**, Toronto, Canada

Clinical Relevance of Amiloride-Sensitive Na^+ Channels in Genetic Disease
Michael Welsh, Iowa City, IA
David Warnock, Birmingham, AL; **Ric Boucher**, Chapel Hill, NC

Structural Models of Amiloride-Sensitive Na^+ Channels
Mauricio Montal, San Diego, CA
Tom Kleyman, Philadelphia, PA; **Jean-Daniel Horisberger**, Lausanne, Switzerland; **Robert Guy**, Bethesda, MD

1998 APS Conference

Endothelial Regulation of Vascular Tone: Molecular to Integrative Physiology

September 16-19, 1998 • Augusta, Georgia

Radisson Riverfront Hotel

ORGANIZER:

David M. Pollock
Medical College of Georgia

STEERING COMMITTEE:

Jennifer S. Pollock
Medical College of Georgia

John D. Catravas
Medical College of Georgia

L. Gabriel Navar
Tulane University

Harris J. Granger
Texas A&M University

Subsequent to the realization that endothelial cells are important regulators of vascular, immunological, and probably many other functions, endothelial cell biology has rapidly expanded into a distinct discipline. Simply in terms of vascular function, this relatively new area covers an extremely wide range of the more traditional disciplines, including physiology, pharmacology, and cell and molecular biology. The purpose of this conference is to present the most recent information on the interaction among major endothelial factors in the control of the vascular tone.

The conference brings together rapidly growing areas of endothelial cell biology so as to develop a more cohesive picture of the vascular endothelium as a physiological organ system. While the primary emphasis will be on specific mediators, related subjects such as shear stress and vascular remodeling will also be covered. Molecular and whole animal physiologists will demonstrate how their methodologies integrate into a central hypothesis and also define the similar aspects and unique mechanisms that exist among the different vascular beds. The conference is different from other vascular related meetings in that it attempts to bring together diverging areas of endothelial cell biology to develop a more cohesive picture of vascular endothelial function.

Tentative Schedule

Wednesday, September 16

Discovery of EDRF
Salvador Moncada, University College, London

Signal Transduction and Gene Regulation
Robert Highsmith, University of Cincinnati; **Rudi Busse**, J.W. Goethe University, Germany; **Ferid Murad**, Molecular Geriatrics; **Brian Duling**, University of Virginia

Thursday, September 17

Paracrine Regulation of the Renal Circulation
L. Gabriel Navar, Tulane University

Endothelial Control of the Renal Microcirculation
Josephine P. Briggs, University of Michigan; **Christopher Wilcox**, Georgetown University; **William J. Arendshorst**, University of North Carolina

Interaction of Nitric Oxide With Other Mediators
David Pollock, Medical College of Georgia; **Pam Carmines**, University of Nebraska; **Tom Hintze**, New York Medical College

Regulation of NOS in Vascular Smooth Muscle
Jennifer Pollock, Medical College of Georgia

Oral Communications on Nitric Oxide

TGF in Fibrotic Disease
Wayne Border, University of Utah

Friday, September 18

Transgenic Mice as Models for Hypertension
Ed Shesley, Henry Ford Hospital

Endothelial Dysfunction: Pharmacology
Joan Kaiser, Parke-Davis; **Lou Ignarro**, University of California at Los Angeles; **Ulrich Förstermann**, Gütenberg University, Mainz, Germany

Endothelial Dysfunction: Pulmonary
Bruce Pitt, University of Pittsburgh; **John D. Catravas**, Medical College of Georgia; **Steve Abman**, University of Colorado

Endothelial Dysfunction: Cardiovascular
Richard Paul, University of Cincinnati; **Leslie Fuchs**, Medical College of Georgia; **Richard Cohen**, Boston University

Peptidase Activity in the Vascular Endothelium
Jim Ryan, Medical College of Georgia

Oral Communications on Endothelin, Renin-Angiotensin, Prostaglandins

Pivotal Role of Endothelium to Heart-Lung Transplantation
Sir Magdi Yacoub, Imperial College, London, UK

Saturday, September 19

Endothelial Regulation of Angiogenesis
Harris Granger, Texas A&M University

Vascular Remodeling
Mary Gerritsen, Bayer; **Gary Gibbons**, Stanford University; **David Harrison**, Emory University

Shear Stress
John Frangos, University of California at San Diego; **Robert Nerem**, Georgia Tech.; **Barbara Ballerman**, Johns Hopkins

Estrogen Modulation of the Vascular Endothelium: Implications for Development of Coronary Artery Disease
Virginia Miller, Mayo Clinic

Oral Communications on Growth Factors and Shear Stress

Endothelial Gene Transfer in Restenosis
Elizabeth Nabel, University of Michigan

1998 APS Conference

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

December 5–9, 1998

The Menger Hotel, San Antonio, Texas

ORGANIZER:

Joseph R. Haywood
University of Texas Health Sciences Center, San Antonio

STEERING COMMITTEE:

Alan K. Johnson
University of Iowa

Arthur D. Loewy
Washington University

Leo P. Renaud
University of Ottawa

Catherine Rivier
Salk Inst.

A. J. W. Scheurink
University of Groningen, The Netherlands

The paraventricular nucleus of the hypothalamus (PVN) serves as the crossroads of integrative physiology. This discrete hypothalamic area receives neural, humoral, and endocrine input regarding the state of the cardiovascular, endocrine, and immune systems, as well as fluid and electrolyte and energy balance. Integration of afferent inputs results in efferent neural or hormonal regulation of specific organ systems. This conference will bring together scientists who study different physiological systems and who use a variety of technical approaches ranging from molecular biology to whole animal physiology. The goal will be to understand how the PVN integrates afferent information, controls specific physiological functions, and coordinates interactions among organ systems.

Tentative Invited Sessions

Anatomy, Neural Pathways and Neurochemistry
Arthur Loewy, Washington University; **Paul Sawchenko**, Salk Institute; **Larry Swanson**, University of California at Los Angeles

Integration of Ingestive Behaviors
Alan Kim Johnson, University of Iowa; **Glenn Stanley**, University of California at Riverside; **Stephen Woods**. University of Washington; **Joseph Verbalis**, University of Virginia; **John Wright**, Washington State University

Role in Metabolism and Energy Balance
Anton J. W. Scheurink, University of Groningen, The Netherlands; **John Vissing**, University of Copenhagen, Denmark; **Barry Levin**, Veterans Affairs Medical Center., East Orange, New Jersey; **Gerjan van Dijk**, University of Washington, **Martine Orosco**, College of France

Neuroendocrine Regulation
Leo P. Renaud, University of Ottawa; **Stanley Watson**, University of Washington; **Ruud Buijs**, Netherlands Institute of Brain Research; **Charles Bourque**, Montreal General Hospital; **William Crowley**, University of Tennessee; **Paul Plotsky**, Emory University

Stress and the Immune System
Catherine Rivier, Salk Institute; **Serge Rivest**, Laval University; **Dwight Nance**, University of Manitoba; **Adrian Dunn**, Louisiana State University Medical Center; **James Herman**, University of Kentucky

Control of Cardiovascular-Renal Function
Joseph R. Haywood, University of Texas Health Sciences Center, San Antonio; **Steven Bealer**, University of Tennessee; **Quentin Pittman**, University of Calgary; **Marianna Morris**, Bowman Gray School of Medicine; **Kaushik Patel**, University of Nebraska; **Alistair Ferguson**, University of Ontario

NIH Sponsors Workshop on Developing Institutional Disaster Plans

May 15-16 • Cleveland, OH

The 1996 edition of the *Guide for the Care and Use of Laboratory Animals* suggests that institutions include a disaster plan as part of the overall safety plan for their animal facility. This workshop will explore steps institutions may take in preparation for, and in response to, a variety of human disasters (hurricanes, floods, snow emergencies, etc.) and human activities (vandalism, arson, etc.).

The workshop is open to institutional administrators, members of institutional Animal Care and Use Committees, laboratory animal veterinarians, investigators, and other institutional staff with responsibility for high-quality management of sound institutional animal care and use programs.

For registration information, contact Margaret Duber Snyder, Ohio Scientific Education and Research Association, P. O. Box 14424, Columbus, OH 43214-0424. Tel: 614-784-1961; fax: 614-784-1962; e-mail: director@OSERA.org.

APS Asks Congress for Animal Welfare Act Enforcement

Congress should provide USDA's Animal and Plant Health Inspection Service (APHIS) with a clear set of priorities and the funds needed to enforce the Animal Welfare Act (AWA), APS Animal Care and Experimentation Committee Chairman **C. Terrance Hawk** told Congress.

"The research community supports Animal Welfare Act enforcement," Hawk told a March 11 hearing of the House Appropriations Subcommittee on Agriculture. Noting the need to respond to well-publicized although not well-substantiated allegations that as many as one to two million dogs and cats each year are stolen and then sold for medical research, Hawk urged that enforcement of USDA regulations concerning animal dealers be made an APHIS priority.

Allegations of pet theft have "led to calls for eliminating Class B dealers (who sell non-purpose-bred dogs and cats for research)," Hawk said. However, "access to non-purpose-bred dogs and cats is important" for some kinds of medical research that may rely on animals that are larger, older, or free from shared genetic defects that occur among the inbred animals supplied by breeders.

Noting the impossibility of proving the negative proposition that no research animals are stolen pets, Hawk underlined the importance of good APHIS enforcement of existing AWA provisions intended to ensure that Class B dealers do not sell lost or stolen pets to research laboratories. "The research community supports enforcement of these laws, including revoking the license of any dealer who acquires stolen animals or repeatedly refuses to comply with the other provisions of the law."

APS Animal Care and Experimentation Committee Chairman C. Terrance Hawk testifies before a March 11 hearing of the House Appropriations Subcommittee on Agriculture.

"APHIS clearly recognizes the importance of its enforcement role and has taken steps to ensure compliance by investigating complaints against class B dealers," Hawk said. "APHIS must continue to give these inspection efforts the high priority they deserve."

Hawk told the panel that FASEB, at its recent consensus conference on FY 1998 funding, came out in support of strong USDA enforcement of AWA provisions with respect to non-purpose-bred dogs and cats. He urged that APHIS be given the full $9.175 million requested by the administration.

In early February, two bills were introduced in the House that would interfere with the use of non-purpose-bred animals in research. H.R. 594, sponsored by Reps. Charles Canady (R-FL) and George Brown (D-CA), would do away with Class B dealers, stop private shelters from providing animals for research, and require public pounds to register with the USDA (and possibly to comply with the AWA) if they wish to provide animals for research. H.R. 635, sponsored by Reps. Jon Fox (R-PA) and Tom Lantos (D-CA), would make restrictive changes in dealer licensing. It would also greatly expand USDA's AWA enforcement powers, including giving USDA authority to halt a research project on suspicion of any AWA violation. This would undermine the stated Congressional intent that the AWA provisions should not disrupt research.

Watch for legislative alerts on these bills in the next issue of *The Physiologist.* ❖

Rep. James Walsh (R-NY) (left) confers with House Agriculture Appropriations Subcommittee Chairman Joe Skeen (R-NM) (center) during a hearing on March 11.

APS, Society for Neuroscience Criticize *Scientific American*

The February issue of *Scientific American* featured a self-styled debate over the need to use animals in research. The "forum" consisted of three articles, plus an introduction by Andrew Rowan of the Tufts University Center for Animals and Public Policy and an editorial by John Rennie, the Editor-in-Chief. Rennie maintained that the series gave equal exposure to both sides of the issue. However, many readers felt otherwise, in particular with respect to the article, "Animal Research is Wasteful and Misleading," by Neal D. Barnard, president of the Physicians Committee for Responsible Medicine, and Stephen R. Kaufman, co-chair of the Medical Research Modernization Committee.

APS President James A. Schafer and Society for Neuroscience President Bruce S. McEwen joined to write a letter to Rennie, registering the concerns raised by many members of the two societies. "The greatest concern," Schafer and McEwen wrote, "was your willingness to print unchallenged the numerous half-truths and misleading statements put forth" by Barnard and Kaufman. "Honest differences of opinion do occur when evaluating scientific research," Schafer and McEwen continued, "but the rules of fair play make it impermissible to advance one's views through sly and disingenuous arguments." The two society heads further told Rennie that "as the publisher of a magazine dedicated to providing scientific information to the lay public, you have an ethical obligation to tell your readers which of [Barnard and Kaufman's] statements were distorted interpretations or just plain wrong."

Scientific American invited Jack H. Botting, the former scientific advisor to the London-based Research Defence Society, and Adrian R. Morrison, professor and researcher at the University of Pennsylvania, to contribute the pro-research article, "Animal Research is Vital to Medicine." Botting and Morrison made a strong case for the affirmative but did not engage in a point-by-point rebuttal of the Barnard and Kaufman piece. *Scientific American* staff writer Madhusree Mukerjee wrote the third article, "Trends in Animal Research," to which many scientists also took exception.

Schafer and McEwen pointed out in their letter that Mukerjee "bestowed undue credit on the animal rights movement for important positive changes in animal experimentation while portraying the role played by biomedical and behavioral researchers as less than constructive .... What Mukerjee failed to note, however, were the many other important changes that have come about not due to a search for alternatives per se, but rather because researchers made use of new knowledge and technology to develop the best approach to answer the question at hand." They also pointed out the importance of not judging past research out of context, noting that standards for human medical care as well as animal experimentation have evolved over time with the accumulation of new knowledge. ❖

Pelosi, Kassebaum to Receive FASEB Public Service Award

Rep. Nancy Pelosi (D-CA) and recently retired Sen. Nancy Kassebaum (R-KS) have been chosen to receive the 1997 FASEB Public Service Award.

FASEB presents its public service award to individuals who have made outstanding contributions to the cause of biomedical or biological research through their work in government, public affairs, the media, the law, the arts, or related fields.

This year's winners have supported biomedical research through their work in the House and Senate, respectively. Pelosi serves on the House Labor-Health and Human Services-Education Appropriations Subcommittee, which oversees funding for NIH, and has championed the cause of basic biomedical research during her six terms in Congress.

Kassebaum, who retired this year after 18 years in the Senate, was chair of the Senate Labor and Human Resources Committee. Kassebaum was instrumental in pushing NIH Revitalization legislation through the Senate during the last term. Although the bill died without House action when Congress adjourned last October, many of the issues advanced through Kassebaum's efforts are expected to be taken up again as Congress mulls NIH reauthorization this term.

Public service award winners are presented a certificate and may elect to designate a $5,000 donation to be made in their honor to a biomedical research organization.

Some previous winners of the FASEB Public Service Award include Sen. Mark O. Hatfield (R-OR); Rep. John E. Porter (R-IL); Ruth L. Kirschstein, currently deputy director of NIH; former Speaker Thomas P. "Tip" O'Neill (D-MA); former Surgeon General C. Everett Koop; scientist Howard K. Schachman; philanthropist Mary Lasker; columnist Ann Landers; and Rep. William H. Natcher (D-KY). ❖

Cloning Announcement Sparks Policy Debate

The February 22nd announcement that scientists in Scotland had successfully cloned an adult sheep, followed shortly by the news that scientists in Oregon had cloned rhesus monkey embryos, raised a firestorm of ethical concerns. The President called for a moratorium on human cloning, Congress held hearings, and legislation banning human cloning was introduced. Meanwhile, scientists sought to explain the technology and its possible application to human health concerns.

On February 24, President Clinton asked the National Bioethics Advisory Commission (NBAC) to "conduct a thorough review of the legal and ethical issues raised" by cloning and to "recommend possible actions to prevent its abuse." The report is due by May 25. In the meantime, on March 4, the President announced a ban on the use of Federal funds to support research on the cloning of humans, pending the NBAC report. The President asked the private sector to join the government's moratorium. "I am urging the entire scientific and medical community," Clinton said, "every foundation, every university, every industry that supports work in this area to heed the Federal government's example. I am asking for a voluntary moratorium on the cloning of human beings until our (National) Bioethics Advisory Commission and our entire nation have had a real chance to understand and debate the profound ethical implications of the latest advances."

The moratorium is designed to prevent work specifically designed for the duplication of human beings, not to stop applications of cloning technology at the molecular or cellular level. The NBAC was scheduled to meet for two days in mid-March to undertake a thorough review of the legal and ethical issues associated with the use of cloning technology and to discuss which applications of this technology are appropriate or inappropriate.

NIH Director Harold Varmus was asked by Congress to testify on the subject of cloning several times, as news broke first of the cloned sheep known as Dolly and then of the rhesus monkeys cloned from embryonic cells. At an NIH appropriations hearing, Varmus cautioned against a rush to legislation, citing possible uses of cloning techniques to develop medically useful products. "I am concerned," Varmus said, "that in rejecting one aspect of this technology (reproductive cloning of human beings) that all of us find repugnant, … we end up with legislation that restricts important research possibilities."

Legislation has already been introduced to limit the use of cloning as a human reproductive technology. Rep. Nita Lowey (D-NY) announced that a bill had been introduced in the New York State legislature to prohibit human cloning research. "There is a great deal of justifiable anxiety," Lowey said. "History shows that if a technology exists, it will be applied. People fear a world where freakish experiments know no bounds."

Rep. Vernon Ehlers (R-MI), a physicist who is vice chair of the House Science Committee, has introduced two bills to limit human cloning. One would make President Clinton's ban on federally funded cloning research law, and the other would ban human cloning altogether. Ehlers said that while "it is extremely important to pursue cloning research," unless human cloning is banned, legislation may be passed "that would be detrimental" to the pursuit of knowledge. ❖

Hatfield to Lead Funding Group for Medical Research

Former Senator Mark Hatfield (R-OR) will lead a new group seeking to promote ways to increase funding for biomedical research. The group is called Funding First and will conduct a three-year campaign in conjunction with the Mary Lasker Foundation.

Reportedly, Funding First's first year will be dedicated to bringing together parties interested in basic and clinical research and to studying the economic benefits of biomedical research through a project with the Pew Charitable Trust. After retiring last year as chair of the Senate Appropriations Committee, Sen. Hatfield is prohibited from lobbying Congress directly for one year. Accordingly, Funding First says it will not engage in any direct lobbying, at least in its first year.

Hatfield, a recipient of the 1996 FASEB Public Service Award with Rep. John Porter (R-IL), has been a longtime supporter of biomedical research. During his tenure in Congress, Hatfield sought to increase funding for NIH not only through the regular appropriations process but through innovative proposals, such as a special trust fund or a tobacco product tax. ❖

President Clinton Releases FY 1998 Budget Proposals

President Clinton's budget proposals for FY 1998 reflect an inflationary increase in funding for NIH and other agencies that fund biomedical research.

In contrast to the President's proposals, which include a 2.6% increase in funding for NIH, the FASEB Consensus Conference Report on Federal funding for biomedical research calls for a 9% increase in NIH funding for FY 1998. The FASEB figure is equal to the increase listed in a report from the Ad Hoc Group for Medical Research Funding and to NIH's own professional judgment budget.

Rep. John E. Porter (R-IL), chairman of the House Appropriations subcommittee in charge of NIH funding, quizzed NIH Director Harold Varmus about the NIH professional judgment budget, as Varmus presented the Administration's budget request before Porter's subcommittee. Porter asked Varmus which projects would be foregone if NIH's professional judgment budget were not enacted. Varmus responded that some projects or grants would not be funded and that some would proceed less quickly. During Varmus's testimony, Porter expressed his dismay with President Clinton's budget and said he "sincerely hopes to do better" in giving NIH the increase it deserves.

Other agencies that fund biomedical research fared to varying degrees under President Clinton's budget. NSF is scheduled to receive a 3% increase overall, including a 3.4% increase in Research and Related Activities. FASEB recommended a 7.1% increase for NSF in its Consensus Conference Report.

NASA's total budget is slated to decrease $209 million to a level of $13.5 billion. The Office of Life and Microgravity Sciences and Application component of the NASA budget is scheduled to decrease $30 million to a level of $214 million. It is anticipated this will mean $50 million will be allocated for competitive grants in the Life Sciences Research and Analysis Program. The $50 million figure reflects level funding from FY 1997. FASEB recommended a 10% increase in NASA Life Sciences Research to a level of $54.8 million.

The account for VA Medical and Prosthetics Research, however, stands to be cut 10.7% from FY 1997 under the President's budget proposals. In contrast, FASEB recommended a 6.9% increase for VA medical research.

Meanwhile, Congressional efforts in support of biomedical research continue. Rep. George Gekas (R-PA) introduced a nonbinding resolution on March 5 expressing the sense of the House that funding for NIH should be doubled over the next five years.

Gekas's bill, H.R. 83, is entitled the "Biomedical Research Commitment Resolution of 1997" and is nearly identical to a resolution, S. 15, introduced in the Senate by Sen. Connie Mack (R-FL).

The Gekas resolution was cosponsored by Rep. Clay Shaw (R-FL), Rep. Ben Gilman (R-NY), Rep. Peter DeFazio (D-OR), Rep. Cliff Sterns (R-FL), and Rep. John Porter (R-IL). ❖

Legislative Mandates at NIH

NIH has issued the following list of legislative mandates from its FY 1997 appropriations bill. These are statutory provisions limiting the use of NIH grant, cooperative agreement, and contract awards. Many of these are continued from prior years.

The legislative mandates include:

- **Continued Salary Limitation**

Appropriated funds may not be used to pay the salary of an individual at a rate in excess of $125,000 per year. This is a continuation of an existing salary cap.

- **Anti-lobbying**

NIH's FY 1997 appropriation also extends a prohibition on the use of grant, cooperative agreement, and contract funds to influence legislation or appropriations before Congress or state legislatures.

- **Buy American**

To the greatest extent practicable, equipment and products purchased with grant, cooperative agreement, or contract funds should be American made.

- **Acknowledging Federal Funding**

All grantees funded wholly or partially by the federal government must acknowledge their federal funding when issuing press releases, requests for proposals, bid solicitations, or other documents.

- **Ban on Funding of Human Embryo Research**

Grant, cooperative agreement, and contract funds may not be used for the creation of a human embryo or human embryos for research purposes or for research in which a human embryo or embryos will be destroyed, discarded, or knowingly subjected to risk of injury or death.

- **ROTC Access and Federal Military Recruiting on Campus**

NIH is prohibited from providing grant, cooperative agreement, or contract funds to educational institutions with policies or practices that effectively prevent the operation of a Reserve Officer Training Corps (ROTC) program. NIH also must not provide funding to educational institutions prohibiting Federal military recruiting on campus.

The list of legislative mandates appeared in the February 7th *NIH Guide to Grants and Contracts* and is available on the Web at **http://www.nih.gov/grants/oer.htm**. ❖

1997 Summer Research Teachers Named

APS Council has approved the 25 teachers selected by the Review Committee to participate in the 1997 Frontiers in Physiology Science Teacher Summer Research Program. The Review Committee includes members of the Education Committee and former summer research teachers.

The 25 teachers were selected from among 64 applications received this year by the Education Office, making an overall acceptance rate of 39%. The number of applications received increased more than 30% from the previous two years. Three of the teachers selected come from Hawaii, Missouri, and South Carolina — states where teachers had not previously participated in the summer research program. Nearly two-thirds of the researchers who will be serving as hosts to these teachers have never before participated in the program.

As in previous years, host institutions will be providing part of the funding for the program. Additional funding will be provided by APS and through grants from NSF and NIDDK.

Middle and high school teachers participating in the Frontiers program will receive a fellowship of up to $5,850, conduct physiology research for a seven- to nine-week period in the laboratory of an APS member, attend a one-week summer retreat to learn how to translate their research experiences into classroom activities, and develop a classroom activity for publication by APS. Teachers will also attend the Experimental Biology '98 meeting in San Francisco, CA, where they and their research hosts will be honored at a luncheon.

The 1997 summer research fellows and their APS research hosts are listed below:

Char L. Anderson, Lakeridge HS, Lake Oswego, OR
Virginia L. Brooks, Oregon Health Sciences University

Laurel A. Bachle, Millard North HS, Omaha, NE
* **David Petzel**, Creighton University School of Medicine

Larry Beck, Isaac E. Young MS, New Rochelle, NY
* **Wen-Hui Wang**, New York Medical College

Isabelle Emilie Camille, Coral Gables Sr. HS, Coral Gables, FL
* **Kenneth J. Muller**, University of Miami School of Medicine

Selina Nadine Caparas, James Island HS, Charleston, SC
* **Francis G. Spinale** & * **George Tempel**, Medical University of South Carolina

Gary Lee Dewey, Holland Christian MS, Holland, MI
Christopher Barney & * **Maria Burnatowka-Hledin**, Hope College

Pamela Gooch, Sacred Heart Academy, Hamden, CT
Walter F. Boron, Yale University School of Medicine

Philip J. Gutleben, Pasco HS, Pasco, WA
* **Kenneth B. Campbell**, Washington State University

Michael Halverson, Valhalla HS, El Cajon, CA
Kim E. Barrett, University of California at San Diego

Susan R. Hill, Beery MS, Columbus, OH
* **Jack A. Boulant**, The Ohio State University

Mona L. Jackson, Thomas-Fay-Custer Unified Sch. Dist., Thomas, OK
Robert D. Foreman, University of Oklahoma Health Science Center

Kenneth Kepler, Hawthorne Mid./HS, Hawthorne, FL
M. Ian Phillips, & * **Mohan K. Raizada**, University of Florida

Gwendolyn Runnels Logan, Coolidge Sr. HS, Washington, DC
Mordecai P. Blaustein, University of Maryland School of Medicine

Lynette Y. K. Low, Robert Louis Stevenson IS, Honolulu, HI
* **John R. Claybaugh** & * **Catherine F. T. Uyehara**, Tripler Army Medical Center

Chris McGaugh, Scripps Ranch HS, San Diego, CA
Richard L. Lieber, University of California at San Diego

Kevin L. Menzel, Thorndale Mid./Sr. HS, Thorndale, TX
* **Edward F. Coyle**, The University of Texas at Austin

Judith Odom, Austin Meehan MS, Philadelphia, PA
* **Thomas R. Kleyman**, University of Pennsylvania

Anne R. Primm, South Doyle HS, Knoxville, TN
* **Michael D. Kartstad**, University of Tennessee Medical Center

Paul C. Rabe, Sam Barlow HS, Gresham, OR
* **Kent L. Thornberg**, Oregon Health Sciences University

Carmen I. Rios, Elizabeth Seton HS, Bladensburg, MD
Gregory L. King, The Armed Forces Radiobiology Research Institute

James Shaidnagel, Pattonville HS, Maryland Heights, MO
* **Mark M. Knuepfer**, St. Louis University School of Medicine

Thomas R. Sisneros, Belen MS, Belen, NM
* **Gary M. Malvin**, The Lovelace Institutes

Vicky L. Snyder, Akron Firestone HS, Akron, OH
Daniel L. Ely, University of Akron

Jeannie Wenndorf, Lindbergh HS, Renton, WA
Michael P. Hlastala, University of Washington

One teacher to be named

* Indicates first-time research hosts

Final Year of *My Health, My World* Project for Grades K-4

The APS Education Office is in the third and final year of collaboration on the *My Health, My World* project with the Baylor College of Medicine and the Texas Medical Association. *My Health, My World* consists of three science curricular units for grades K-4 that are being developed, field-tested, and disseminated on a one-unit-per-year basis. Each unit deals with a different aspect of environmental effects on human health and physiology. The APS Education Office is responsible for coordinating the field testing for the Washington, DC, area, one of three field test sites that include Houston and Austin, TX. The project is sponsored by the National Institute of Environmental Health Sciences (NIEHS), and APS activities are supported by a subcontract from Baylor College of Medicine.

At the *My Health, My World* workshop, participants observe the physical and chemical changes that take place in sugar when it is held over a candle to burn.

During the three-year run of the project, the APS Education Office recruited nearly 50 preschool and elementary school teachers in Washington, DC, and Maryland to attend one or more of the three workshops. The final teacher workshop was held at APS headquarters in Bethesda, MD, on March 1, 1997.

A poster showing how the Earth's major climate types affect people's lifestyles is explained by a *My Health, My World* workshop attendee.

In a full-day session, teachers learned to use the materials in the Year III unit, *My Home, The Planet Earth*. APS Education Office staff began the workshop by introducing printed materials for the unit. Staff then demonstrated the activities and provided guidance while teachers did each of the hands-on science activities in the teacher guide. Activities included observing how carbon dioxide gas is given off by yeast cells when using sugar as food, measuring the surface area of the skin, modeling wave motion in a section on radiation, and measuring heat energy. The participants also discussed cooperative group learning and ways to incorporate specific science and math skills during the activities. Teachers then received printed materials for their students, activity supplies, and teacher/student evaluation forms.

My Health, My World teachers use wax paper and graph paper to estimate the surface area of their skin.

Workshop attendees will return to the APS Conference Center later in the spring of 1997 for a follow-up brainstorming session, where they will critique the Year III unit's materials and activities and discuss the reactions of their students to the unit. The three science curricular units will become available for sale in late 1997 through the Baylor College of Medicine. For more information about *My Health, My World*, contact Marsha Lakes Matyas, APS Education Officer, at 301-530-7132 or by e-mail at mmatyas@aps.faseb.org. ❖

For more information on APS education programs,

contact **APS Education Office**
9650 Rockville Pike
Bethesda, MD 20814

Tel: 301-530-7132
FAX: 301-571-8305
E-mail: educatio@aps.faseb.org

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- What kinds of discoveries do physiologists make?
- How does the work of a physiologist benefit humans and animals?

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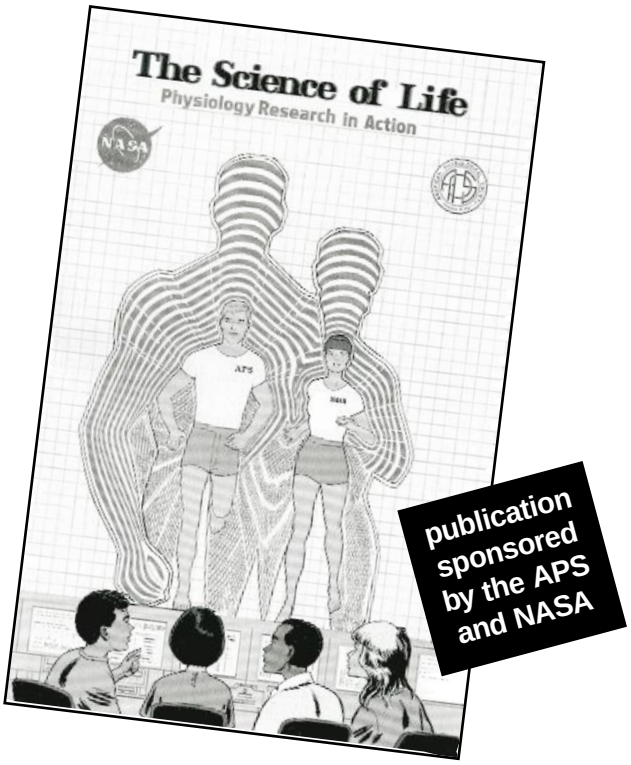

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Introducing … Martin F. Kagnoff

Martin F. Kagnoff, Professor of Medicine at the University of California at San Diego, will assume the editorship of the *American Journal of Physiology: Gastrointestinal and Liver Physiology*, effective July 1, 1997.

Kagnoff was born in Vancouver, British Columbia, Canada, and attended the University of British Columbia as an undergraduate. He received his MD from Harvard University in 1965. After completing clinical postdoctoral studies in medicine at the Peter Bent Brigham Hospital, Harvard Medical School, and New York Hospital, Cornell Medical School, he completed postdoctoral training in gastroenterology. Kagnoff then moved west to complete further postdoctoral training in cellular immunology and immunogenetics under **Melvin Cohn** at the Salk Institute. He subsequently joined the faculty of the University of California at San Diego, School of Medicine and currently directs the Laboratory of Mucosal Immunology at that institution.

In addition to his past service to the *Journal of Clinical Investigation*, first as an associate editor and later as editor, he served on the editorial board of *Gastroenterology* and as chairman of several NIH special study sections in the areas of mucosal immunology and gene transfer. He has also been a member of the Biomedical Research Panel of the Alberta Heritage Foundation in Canada and the Basic Sciences Study Section for the state of California AIDS Research Program. Kagnoff has chaired both the Curriculum Committee and the Committee on Educational Policy at the UCSD School of Medicine.

Kagnoff has made many fundamental contributions to our understanding of the cellular nature and function of the mucosal immune system. In addition to defining specialized properties of lymphoid populations at mucosal surfaces and their responses to antigenic stimulation, his early studies brought into focus the dichotomy between immune induction and oral tolerance following host exposure to antigen in the gastrointestinal tract. His work on the immunogenetics and immunopathogenesis of human celiac disease helped develop the basis for current models of the molecular pathogenesis of that disease. Kagnoff's most recent work has focused on the role epithelial cells play as an integral component of the mucosal immune system. His studies in this area showed that epithelial cells can serve as sensors for microbial invasion and upregulate the expression of genes important for the activation of the mucosal inflammatory response. Research in Kagnoff's laboratory has been funded largely by research grants from NIH, as well as support from the Crohn's and Colitis Foundation of America, and the Pediatric AIDS Foundation.

Kagnoff has several goals for the journal. In conjunction with his team of associate editors (**David Brenner**, **Paul Kubes**, **Marshall Montrose**, **Chung Owyang**, and **John Walsh**), he intends to broaden the scope of the research articles published by the journal and concurrently increase the number of journal submissions from the US and abroad. In this regard, he will build on the high standards set by his predecessor, **David Alpers**, and encourage the increased submission of state-of-the-art manuscripts using molecular biologic and biochemical approaches to solve important physiological problems. In addition to the traditional areas of gastrointestinal and liver physiology published in the journal, Kagnoff envisions the journal as ripe for significant growth in submissions in the area of intestinal inflammation, mucosal immunophysiology, intestinal neurobiology, and epithelial cell biology. Kagnoff is committed to further improve the timeliness of the review and publication process and the smooth transition of the journal to an electronic publishing format.

Finally, Kagnoff plans to publish several series of short, insightful perspective articles in cutting edge areas that focus on key physiological processes examined from different viewpoints. The goals he has set for his editorial team and the journal should help attract the best manuscripts in the area of gastrointestinal and liver diseases, and clearly establish the *American Journal of Physiology: Gastrointestinal and Liver Physiology* as the premier journal in its field. ❖

Publications

Three Journal Anniversaries in 1998

In 1998, the *American Journal of Physiology* celebrates its centennial, the *Journal of Neurophysiology* 60 years, and the *Journal of Applied Physiology* 50 years of publication. To mark these anniversaries, the Society is planning special covers and featured articles in the journals, as well as celebrating these special anniversaries at its meetings.

In each journal, the Society will be publishing an editorial by the Publications Chairman, a brief history of the journal, and commentaries by the editor/associate editors on landmark articles in the early years. In addition, the History of Physiology Group is planning a symposium to recognize the accomplishments of *AJP* before and after its change into specialty journals.

If readers know of early articles that they deem worthy of recognition by the journal editors and the History of Physiology Group, please send the article citation and a rationale (300 words or less) before **June 1, 1997**, to Brenda B. Rauner, Publications Manager, at APS Headquarters. She will coordinate and forward the material received to the various editors who will make the final decisions on the citations to be recognized. ❖

Chapter News

Ohio Physiological Society Meeting

This year's Ohio Physiological Society meeting took place on Saturday, December 14, 1996, in the Department of Physiology and Biophysics of Case Western Reserve University. The scientific session was organized around the theme "New Methodologies and Research Possibilities in Physiology" with five speakers (**Aravinda Chakravardi**, "Finding Genes by Mapping"; **Pamela B. Davis**, "Receptor-mediated Gene Transfer Targeting Epithelial Cells"; **Ulrich Hopfer**, "Insights From New Renal Cell Models"; **Arthur M. Brown**, "Physiology of Excitability Genes"). The APS-sponsored speaker was **Evangelia G. Kranias** from the University of Cincinnati, who delivered a lecture on "Elucidation of Cardiac Function Using Genetically Engineered Mice."

The afternoon session was devoted to posters and provided ample time to exchange ideas around the 26 posters. Both sessions were very interesting and well received. **Manjunatha Bhat** and **Parkash Badola**, both from Case Western Reserve University, received the student and postdoctoral prize, respectively. The meeting was attended by 56 scientists and students from Wright State University, Medical College of Ohio, University of Cincinnati, Cleveland Clinic, and Case Western Reserve University. The new President of the Ohio Physiological Societwey is **John Cuppoletti** from the University of Cincinnati; the President-elect is **Norma Adragna** from Wright State University. ❖

Positions Available

Postdoctoral positions to study various electrophysiological and molecular aspects of volume-sensitive ion channel and transporter function are available in the Laboratory of Cellular and Molecular Physiology at Vanderbilt University beginning in August 1997. The Laboratory of Cellular and Molecular Physiology consists of four independent laboratories with research efforts focused on various cellular and molecular aspects of membrane biology. Vanderbilt is an outstanding university with a superb collegial environment. There is a very strong membrane physiology research focus on campus, particularly in the Department of Pharmacology and Renal Division. A multidisciplinary Membrane Biology Center is currently being developed on campus. Interested individuals should contact Dr. Kevin Strange (Until June 15, 1997) at: Childrens Hospital, Critical Care Research Labs, Enders 12, 320 Longwood Avenue, Boston, MA 02115; phone: 617-355-6096; e-mail: strange_k@a1.tch.harvard.edu. (After July 1, 1997): Department of Anesthesiology, Vanderbilt University, 1116 21st Avenue South, T-4216 MCN, Nashville, TN 37232; phone: 615-343-9419.

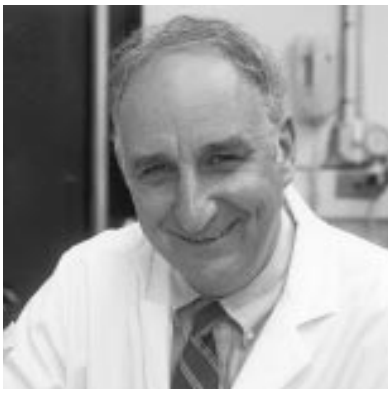
Positions Available

There is a $50.00 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. A check or money order payable to "The American Physiological Society" must accompany the position listing. **Copy must reach the APS office before the first of the month, one month preceding the month of issue.** Mail copy with payment to: *The Physiologist*, APS, 9650 Rockville Pike, Bethesda, MD 20814-3991.

Three APS Members Elected to Institute of Medicine

Three APS members were among the 55 new members recently elected to the Institute of Medicine. A brief biographical sketch of each follows.

Samuel Silverstein



Samuel Silverstein has been the John C. Dalton Professor and Chairman of the Department of Physiology and Cellular Biophysics at the College of Physicians and Surgeons at Columbia University since 1983. He received his MD from Albert Einstein College of Medicine in 1963, trained in internal medicine at the University of Colorado and Massachusetts General Hospital, was a Helen Hay Whitney Fellow in the Laboratory of Cell Biology at Rockefeller University, and from 1968-1983 was a member of the faculty of the Laboratory of Cellular Physiology and Immunology at Rockefeller University.

Silverstein's research spans the disciplines of cell biology, cellular immunology, experimental pathology, and infectious diseases. He is best known for his studies of macrophage biology, especially the mechanism of phagocytosis, and for the discovery that the bacterium that causes Legionnaire's Disease, *Legionella pneumophila*, grows within macrophages.

His interests in education led him to found and direct Columbia's summer research program for secondary school science teachers and to co-direct, with Ronald Drusin, the highly successful revision of the medical curriculum at Columbia University's College of Physicians and Surgeons.

Silverstein was elected President of FASEB in 1993-94, a time of threats of major reductions in Federal funding for medical research. In Congressional testimony and in other venues, Silverstein argued forcefully and successfully for increased Federal investment in medical research and public health at NIH and CDC. He and his colleagues at FASEB are credited with a major role in preserving Federal support for NIH. Silverstein has received several awards for his professional and scientific accomplishments, the most unusual of which is the National Geographic Society's John Oliver LaGorce Award for antarctic exploration.

Stephen G. Waxman

Stephen G. Waxman exemplifies the bridge between basic science and clinical

medicine and the transition from laboratory to bedside. For the past 10 years, he has served as Chairman of the Department of Neurology at the Yale University School of Medicine and Neurologist-in-Chief at the Yale-New Haven Hospital. In addition to his role as Professor of Neurology, Neuroscience, and Pharmacology at Yale University, Waxman founded and is the Director of the PVA/EPVA Neuroscience Research Center at the VA Hospital of West Haven, CT.

Waxman graduated from Harvard College in 1967 and received his MD and PhD degrees from Albert Einstein College of Medicine in New York in 1970 and 1972, respectively. He did his neurology residency at Boston City Hospital/Harvard Medical School (1972-75) and subsequently served as assistant professor (1975-77) and associate professor (1977-78) at Harvard Medical School and at MIT. From 1978 to 1986, Waxman served as Professor and Vice Chairman of Neurology and Director of the Neurosciences Program at Stanford University.

Waxman has received international recognition for elucidating the molecular architecture of nerve fibers and the glial cells that surround them and the mechanisms by which nerve fibers in the brain and spinal cord adapt to injury. His research has clarified the functions of sodium channels and potassium channels in nerve fibers. His studies on spinal cord injury have identified the molecules that carry calcium into nerve fibers, killing them after injury; these studies may provide new treatment strategies for spinal cord injury and certain types of stroke. Waxman's research has also elucidated the molecular mechanisms underlying re-missions, whereby patients recover function such as vision in multiple sclerosis, and has led to the development of new drugs, currently under evaluation in clinical trials, that may provide new treatments for multiple sclerosis and spinal cord injury.

Waxman has published more than 300 scientific papers and has edited 5 books on neuroscience. He has authored a book entitled *Spinal Cord Compression* and a text book entitled *Correlative Neuroanatomy* that has been translated into six languages. He is the editor of *The Neuroscientist*, serves as associate editor of the *Journal of Neurological Sciences* and *Muscle and Nerve*, and has served on the editorial boards of numerous journals, including *Trends in Neuroscience*, *Brain Research*, and *Annals of Neurology*. He

has trained more than 100 neurologists and neuroscientists at work in the US, Europe, and Asia.

Waxman has served on the advisory boards of the American Paralysis Association, the Veterans Administration, and the Spinal Cord Research Foundation. He has also served on the Board of Scientific Counselors of the National Institute of Neurological Diseases and Stroke and the Board of Neuroscience of the Institute of Medicine. Waxman is an established investigator of the National Multiple Sclerosis Society. He has received many awards, including the Trygve Tuve Award from NIH and the Distinguished Alumnus Award from the Albert Einstein College of Medicine.

Edgar Haber

Edgar Haber is Elkan R. Blout Professor of Biological Sciences at Harvard School of Public Health and a Professor of Medicine at Harvard Medical School (HMS).

He is also Director of the Center for the Prevention of Cardiovascular Disease. Prior to joining the faculty of the Harvard School of Public Health, Haber was president of the Bristol-Myers Squibb Pharmaceutical Research Institute (1990-91) and a member of the company's board of directors. In this capacity, he effected the merger of Bristol-Myers' and Squibb's research and development arms to create one of the world's largest pharmaceutical research organizations, an integrated unit of more than 4,000 people with major facilities in the US, Europe, and Japan. Before the merger of Bristol-Myers and Squibb, Haber was president of the Squibb Institute for Medical Research (1988-90). There, he expanded Squibb's research and development efforts, with particular emphasis on the recruitment of fundamental investigators to the Institute and the creation of strong links to academic institutions. Many research efforts were initiated at Oxford University, the Louis Pasteur University in Strasbourg, Massachusetts General Hospital (MGH) in Boston, and Mt. Sinai Hospital at the University of Toronto.

Most of Haber's early career was spent at MGH, where he served as chief of cardiology for 24 years, and at HMS, where he was Higgins professor of medicine. Haber earned his AB from Columbia College and his MD from Columbia College of Physicians and Surgeons. He went on to receive medical and scientific training at MGH, the National Heart Institute (in the Laboratory of Cellular Physiology), and the Cardiac Department at St. George's Hospital in London. After completing his postdoctoral training, Haber held a series of positions of increasing importance at both HMS and MGH. Over two decades, he built a world-renowned cardiology department with a staff of approximately 300 that included more than 90 physicians and PhDs; his own research group numbered 100. This department was noted not only for first using molecular biology and immunology in the study of cardiovascular disease but also for training many of today's leaders in cardiology. Haber is an immunologist known worldwide for inventing the assays for digoxin and renin, for his early elucidation of the renin-angiotensin system, for his utilization of specific antibodies in cardiovascular imaging, and as a pioneer in biotechnology. His current work is focused on gene expression in vascular injury and arteriosclerosis.

Haber is a diplomate of the American Board of Internal Medicine, a fellow of the American College of Cardiology and the American College of Physicians, and a member of many distinguished scientific societies. He has, over the past 30 years, served on 30 national committees on topics ranging from allergy and immunology to tissue and organ biology.

Haber has published more than 500 papers in the fields of cardiology and basic immunology and has served on the editorial boards of major scientific publications. These include *Circulation Research*, *The New England Journal of Medicine*, and *The Journal of Clinical Investigation*. He was editor-in-chief of *Hypertension* for five years.

Among many awards and honors, Haber has received the University Medal for Excellence from Columbia University, a Special Citation for Distinguished Service to Research from the American Heart Association, the Franz Volhard Award from the International Society for Hypertension, the Grand Scientific Award of the Phi Lambda Kappa Medical Fraternity, the Otsuka Award for Outstanding Research from the International Society for Heart Research, the Research Achievement Award of the American Heart Association, the Ciba Award for Hypertension Research from the American Heart Association, and, most recently, the Distinguished Scientist Award of the American College of Cardiology, the Joseph Mather Smith Prize from Columbia University's College of Physicians and Surgeons, the Distinguished Alumnus Award of the Horace Mann School, and the Gold Medal for Excellence in Clinical Medicine of the Alumni Association of the College of Physicians and Surgeons of Columbia University.

Haber is a fellow of the American Academy of Arts and Sciences and the American Association for the Advancement of Science and is a member of the National Academy of Sciences. ❖

People and Places

Neil Albert Bradbury has accepted a position as Research Fellow with the Department of Cellular Biology and Physiology, University of Pittsburgh School of Medicine, Pittsburgh, PA. Formerly, Bradbury was assigned to the Department of Physiology, University of Alabama at Birmingham, Birmingham, AL.

Kori L. Brewer has become affiliated with The Miami Project, University of Miami School of Medicine, Miami, FL, after leaving the Department of Physiology, East Carolina University School of Medicine, Greenville, NC.

Moving to the Washington, DC area, **Vincent A. Chiappinelli**, has joined the Department of Pharmacology, George Washington University School of Medicine. Prior to his new position, Chiappinelli was affiliated with the Pharmacology and Physiology Science Department, St. Louis University School of Medicine. St. Louis, MO.

Lisa K. Conley has joined the Biology and Physical Therapy Department of Carroll College, Waukesha, WI. Conley was previously associated with the Department of Biological Sciences, University of Wisconsin, Milwaukee, WI.

Having moved from the Department of Physiology, United Arab Emirates University, Al Ain, United Arab Trucial States, **Farouk El-Sabban** has joined the Department of Physiology Faculty of Medicine, Universiti Malaya-Lembah Pantai, Kuala Lumpur, Malaysia.

Now affiliated with the Children's Hospital Oakland Research Institute, Oakland, CA, as an assistant research scientist, **Horst B. Fischer**, previously was a postdoctoral fellow of the Department of Cell Biology and Physiology, University of Pittsburgh School of Medicine, Pittsburgh, PA.

Deceased Members

Paul D. Altland
Rockville, MD

William M. Armstrong
Indianapolis, IN

Michael J. Cronin
South San Francisco, CA

Benjamin G. Ferris
Weston, MA

Joseph P. Holt
Naples, FL

Moving to Seattle, WA, **Jefferson Clark Frisbee** has accepted a position as a teaching assistant at the University of Washington, National Simulation Resource Center for Bioengineering. Formerly, Frisbee was a teaching assistant at the University of Guelph School of Human Biology, Guelph, Ontario.

John D. Griffin, a postdoctoral fellow, has moved from the Harvard Institute of Medicine, Boston, MA, and joined the biology faculty of Sacred Heart University, Fairfield, CT.

H. Edward Grotjan was formerly with the Animal Science Department, University of Nebraska, Lincoln, NE. Grotjan recently joined the Department of Pharmacology and Molecular Biology, Washington University School of Medicine, St. Louis, MO.

Andrew John Halayko has moved from the Department of Physiology, the University of Manitoba, Winnipeg, Canada, to the Department of Medicine, the Section of Pulmonary & Critical Care, University of Chicago, Chicago, IL.

Recently, **Dan R. Halm** has joined the Department of Physiology and Biophysics, Wright State University, Dayton, OH. Halm was previously affiliated with the Department of Physiology, Ohio State University, Columbus, OH.

Accepting a new position with Brigham & Women's Hospital, Department of Medicine, Renal Division, Harvard Medical School, Boston, MA, **Bryan Mackenzie** has left the Department of Physiology, UCLA School of Medicine, Los Angeles, CA.

Formerly, **Kenneth G. Mandel** was a staff scientist with the Procter and Gamble Company, Cincinnati, OH. Presently, Mandel is Assistant Director, New Products Research, in the Gastrointestinal Category at SmithKline Beecham, Parsippany, NJ.

James J. McGrath has recently accepted a position with the Department of Physiology, Health Science Center, Texas Tech University, Lubbock, TX. Prior to his new position, McGrath was employed by the US Environmental Protective Agency, Research Triangle Park, NC.

Currently, **Takeshi Nishiyasu** is affiliated with Yamaguchi University, College of General Education, Yamaguchi, Japan. Formerly, Nishiyasu was working with The John B. Pierce Laboratory, New Haven, CT.

David G. Parkes has moved to San Diego, CA, to become a research fellow with the Department of Physiology, the Amylin Pharmaceuticals, Inc. Previously, Parkes was a fellow with the Howard Florey Institute, University of Melbourne, Parkville, Australia.

Christopher Morand Penland, formerly with the Physiology Department, East Carolina University School of Medicine, Greenville, NC, has now joined the Cystic Fibrosis Research Lab, Stanford University, Stanford, CA.

Originally, Chairman of the Department of Physiology and Neurobiology, University of Connecticut, Storrs, CT, **Guillermo R. Pilar** recently became Chairman of the Department of Neurosciences, Case Western Reserve University Medical School, Cleveland, OH.

Following his move from Bayer's Metabolic Disorders Research, West Haven, CT, **Jian-Ming Ren** accepted a position with Bristol-Myers Squibb, Department of Metabolic Diseases, Pharmaceutical Research Institute, Princeton, NJ.

Adam J. Rich, research fellow, moved from the Department of Physiology & Biophysics, Mayo Foundation, Rochester, MN, to the Department of Dental Research, University of Rochester Medical Center, Rochester, NY.

Changing his affiliation, **George Rodney, Jr.**, formerly with the Department of Physiology, University of Texas Health Science Center, San Antonio, TX, is currently with the Department of Molecular Physiology, Baylor College of Medicine, Houston, TX.

Sabyasachi S. Sircar, previously affiliated with the Department of Zoology, University of Texas, Austin, TX, has moved to Delhi, India, and now is associated with the Anand Lok Society, Mayur Vihar.

Christina M. Spengler, former research fellow with the Physiology Program at the Harvard School of Public Health , Boston, MA, has joined the Swiss Federal Institute of Technology Exercise Physiology Program, Zurich, Switzerland.

Having left the Neuropharmacology Section of the Food and Drug Administration, Rockville, MD, **Kishena C. Wadhwani** has recently joined Symphony Pharmaceutical, Inc., Fraizer, PA, as senior research scientist.

Donald E. Watenpaugh, formerly Manager of the Life Science Division, NASA Ames Research Center, Moffett Field, CA, is now Manager of the Department of Integrative Physiology, University of North Texas Health Science Center, Fort Worth, TX. ❖

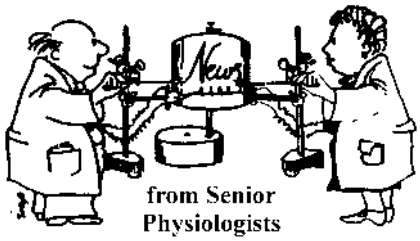
Letters to Harold S. Weiss

Sidney J. Stolzenberg writes: "I served in the US Army in 1946 and 1947 and was stationed in Germany with the occupation forces. My first professional job was as a biochemist with American Cyanamid Co., working with Lederle Laboratories in Pearl River, NY, from 1954-59 and in American Cyanamid's Agricultural Division in Princeton, NJ, from 1959 to 1972. I was on leave of absence from work between 1963 and 1966 in order to continue my studies.

"In 1966, after receiving a PhD from Cornell in the physiology of reproduction and after doing research on ovarian function, I was transformed into a physiologist. I worked at SRI International in Menlo Park, CA, between 1972-78 and at the University of California at San Francisco between 1978-80, where I continued to do research in reproductive toxicology. I then joined the Food and Drug Administration (FDA) in 1980. I was away from FDA, however, for a period of four years (1987-1991), during which time I spent two years at the Office of Pesticides Program at the Environmental Protection Agency (EPA) in Crystal City, VA, and two years with Alliance Pharmaceutical Corp. in San Diego, CA.

"I continue to be employed at the Division of Cardio-Renal Drug Products at the FDA Center for Drug Evaluation and Research (CDER). My primary activity is to review data in animal studies to support investigational new drug (IND) and new drug applications (NDA). In addition, I have been very active in training programs at FDA, particularly in reproduction physiology and toxicology and neonatal pharmacology."

Marilyn L. Zimny writes: "After being head of the Department of Anatomy at Louisiana State University Medical Center (LSUMC) for 15 years, I was appointed in 1990 as Vice Chancellor for Academic Affairs and Dean of the School of Graduate Studies for LSUMC, both in New Orleans and Shreveport. The greater part of my time is spent on academic



affairs, which includes the library, student financial aid, student health, the registrar's office, institutional research and planning, and technology transfer.

"Although I am no longer doing research and writing scientific papers, I do write reports for the medical center. Part of my responsibilities include interacting with the State of Louisiana Board of Regents. I chair and serve on several committees at the board and find this most interesting. I am also the State Liaison to the Southern Regional Educational Board. I also enjoy this interaction.

"As to words of wisdom for younger colleagues, I would like to recommend that they follow the rules and regulations and chain of command at their respective institutions, contribute at least as much to the institution as they do to themselves, and be reasonable and flexible when contemplating change."

Sir John Vane writes: "To keep you completely up-to-date, on September 30th, I step down (or should it be step up?) from the position of Director-general of the William Harvey Research Institute in London to the nonexecutive position of Honorary President.

"I shall maintain an office at the William Harvey Research Institute and do everything I can to help my successor as Director-general, Tom Meade, to take the institute to even further glory. I am delighted that Meade has accepted the invitation to become Director-general. Our trustees have acted wisely and imaginatively in their selection of my successor, a man of international standing in British science. He brings a new discipline to the William Harvey Research Institute, and his expertise will ensure that it maintains its world-class reputation."

Letter to Stephen M. Cain

Walter J. Freeman writes: "Although my early retirement from the University of California Department of Molecular & Cell Biology was officially in 1994, the pace of my laboratory continues the same, with three graduate students and two postdoctoral fellows. NIMH supports a grant, "Correlation of EEG and Behavior," now in its 34th year, for the study of the nonlinear dynamics my students and I have described in all of the sensory systems. We have shown that state transitions between broad-band and narrow-band chaotic attractors cause the formation of percepts in trained animals.

"This is not information processing. It is the construction of meaning. ONR supports a grant for the development of pattern recognition devices based on the use of chaotic dynamics and controlled noise so that systems can operate in noisy and unpredictable environments, with weak and ambiguous signals from an infinitely complex environment, just the way animals and people do.

"I have published a new book, *Societies of Brains: A Study in the Neuroscience of Love and Hate* (Hillsdale, NJ: Lawrence Erlbaum Assoc., 1995), which summarizes the history and philosophical basis for this work and its significance for human affairs. It is based on my 1975 technical monograph, *Mass Action in the Nervous System* (New York: Academic). My aims are to complete studies now under way of the relations between the primary sensory cortices and the entohinal cortex as the gateway to the limbic system and to extend the studies to humans in clinical settings. Also, I hope to bring the chaotic dynamics of the neocortex into the realm of practical applications so that we can advance beyond the current impasse in artificial intelligence." ❖

Comparative Vertebrate Neuroanatomy: Evolution and Adaptation

Ann B. Butler and William Hodos.
New York: John Wiley & Sons, 1996, 552 pp, illus., index, $74.95.
ISBN: 0-471-88889-3

Comparisons between species are important in all of biology but relatively neglected in modern neuroscience. Deeply held beliefs and myths about brain evolution nonetheless permeate many aspects of contemporary neuroscience. Although most of these myths have been debunked by recent research in comparative neurobiology, this knowledge has remained inaccessible to a general audience, primarily because there have been no scholarly texts that could serve as an introduction to the field. The classic treatises on comparative neuroanatomy by Ariens Kappers et al. (1936) and Kuhlenbeck (1977) are multivolume tomes that intimidate most readers and do not review the recent work. Sarnat and Netsky's (1981) more accessible book, on the other hand, is so full of errors that one cannot seriously recommend it as an introduction to the field. In this context then, the book by Butler and Hodos fills a void that has been distressing comparative neurobiologists for years. It provides advanced undergraduates or graduate students with the background necessary to understand more detailed studies in comparative neuroanatomy.

The book begins with several introductory chapters on evolutionary theory, basic neurobiology, vertebrate phylogeny, and prior theories of brain evolution. These chapters also introduce the two fundamental themes of the book, namely *1*) that organisms cannot be arranged along a single "phylogenetic scale," and *2*) that vertebrate brain evolution is characterized not by the addition of new components but by divergent modifications of a fundamental pattern common to most vertebrates. These two ideas, which are probably the most important realizations of contemporary comparative neuroanatomy, are discussed forcefully and eloquently. Other theoretical aspects of comparative neurobiology are not discussed as carefully, however. Most significantly, an exposition of the cladistic methodology for reconstructing phylogeny is seriously hampered by discrepancies between figures and text. Similarly confusing is the inconsistent placement of taxa and ancestral nodes in several of the phylogenetic trees. These discrepancies should be cleared up in subsequent editions of the book, lest they undermine the authors' insistence that a rigorous methodology is of fundamental importance in contemporary comparative neurobiology.

The main portion of the book consists of concise descriptions of the major brain regions and systems in vertebrates. In a refreshing and original move, the authors arranged their descriptions not in the imaginary sequence "from fish to man" but according to whether the brains are simple or complex. The vertebrates with relatively simple brains include lampreys, dogfish, sturgeons, lungfishes, and amphibians; those with more elaborated brains include hagfishes, some rays, reptiles, birds, and mammals. By recognizing these two groups, each of which includes phylogenetically divergent taxa, the authors reinforce the idea that animals cannot be arranged along a single, linear scale of evolution. One should also stress that organisms that are simple in some respects may be complex with regard to other characters, but this notion of mosaic brain evolution is implicit in the text. The descriptions themselves are generally accurate and supplemented by adequate, if less than lavish, illustrations. Experts would probably prefer more details and caveats, but these would quickly increase the length of the book beyond reasonable limits, and the authors have included numerous references to the relevant literature at the end of each chapter. In this manner, the authors have accomplished their goal of providing an invaluable tool for anyone seeking entrance into the frequently impenetrable world of comparative neuroanatomy.

In the final chapter, the authors transcend the ambitions of the simple introductory text by considering not only the evolutionary history of neural structures but also the functional and ecological correlates of these transformations. Although the proposed scenarios remain superficial and speculative, the authors should be commended for attempting such a synthesis of structure with function. In addition, the authors propose some hypotheses at the genetic and developmental levels to account for evolutionary changes in adult morphology. These scenarios may be simplistic, but they do convey a sense of what kinds of questions future generations of comparative neuroscientists will be able to address. The book should thus be stimulating for students and "experts" alike, as well as for scientists from other disciplines who seek to enrich the field of comparative neuroanatomy as it has traditionally been practiced and defined. ❖

Georg Striedter
University of California at Irvine

Audiovisual Publications and Materials

Available from **Films for the Humanities and Sciences**, Princeton, NJ.

* *The New Living Body: Blood*. Princeton, NJ: Films for the Humanities & Sciences, 1995, 20 minutes color, $99.00. #APX5987.

* *The New Living Body: Bones*. Princeton, NJ: Films for the Humanities & Sciences, 1995, 20 minutes, color, $99.00. #APX5982.

* *The New Living Body: Digestion*. Princeton, NJ: Films for the Humanities & Sciences, 1995, 20 minutes, color, $99.00. #APX5986.

* *The New Living Body: Homeostasis*. Princeton, NJ: Films for the Humanities & Sciences, 1995, 20 minutes, color, $99.00. #APX5990.

*10-part series, $949.00. #APX5981.

Available from **Milner-Fenwick, Inc.**, Timonium, MD.

Irritable Bowel Syndrome. Douglas A. Drossman, Mark A. Peppercorn, and Joseph G. Sweeting. Clinical Teaching Project, American Gastroenterological Association, 1997, slide unit with text, $150.00.

Psychophysiology: The Mind-Body Perspective

Kenneth Hugdahl.
Cambridge, MA: Harvard University Press, 1996, 429 pp., illus., index, $49.95. ISBN: 0-674-72207-8

As part of the series "Perspectives in Cognitive Neuroscience," *Psychophysiology: The Mind-Body Perspective* by Kenneth Hugdahl makes a fine addition as an introductory text. The book is geared toward undergraduate or graduate students, but is also appropriate for professionals seeking an orientation to the field of psychophysiology — "the study of brain-behavior relationships in the framework of peripheral and central physiological responses." Hugdahl's unique emphasis throughout this volume is to encourage the further integration of psychophysiology with neuroscience, neuropsychology, and other related disciplines. Indeed, Hugdahl is particularly qualified to provide such a perspective, as evidenced by his own interdisciplinary work. The book is organized into three sections that provide a general introduction to psychophysiology, a review of relevant nervous system anatomy and physiology and a description of methodological techniques and issues in psychophysiology related to the measurement of brain function, electrodermal activity, cardiovascular arousal, and certain aspects of muscular activity.

In Section I, Hugdahl first provides a brief introduction to the field of psychophysiology including description of relevant definitions, response systems, and measurement issues (Chapter 1) and then introduces concepts related to the psychophysiology of emotion, cognition, and clinical syndromes. Chapter 2 provides an overview of critical concepts, terms, and definitions in psychophysiology (e.g., response stereotypy and autonomic balance). The definitions are purposely cursory and prime the reader for the ensuing chapters. This initial section touches upon many of the major issues in psychophysiology but may be a bit difficult for the naive reader to follow given the coverage of numerous and somewhat disparate concepts.

Section II offers basic principles of neural transmission and provides a brief description of central and peripheral nervous systems (Chapter 3). Chapter 4 focuses specifically on the brain and its structural and functional subdivisions and introduces the stress-response systems (e.g., sympathoadrenomedullary axis), while Chapter 5 focuses on the autonomic nervous system.

In Section III, Hugdahl presents an evolutionary model in relation to the functional significance of electrodermal responses, as well as methodology related to the collection of electrodermal activity (Chapter 6). Chapter 7 covers orienting and defensive responses, with a particular emphasis on relating theories of the orienting response to information-processing and memory-template models. Chapter 8 is devoted to a discussion of the practical application of the electrodermal response in clinical practice and research on psychosomatic and psychopathological problems. Structural and functional dimensions of the heart, blood vessels, and circulation are described in Chapter 9, along with both older and more contemporary methods used to measure cardiovascular function.

In Chapter 10, Hugdahl examines principles of cardiovascular psychophysiology, including cardiovascular reactivity and several moderators of reactivity (e.g., gender, Type A Behavior Pattern), and its potential role in the development of cardiovascular disease. Also described are the cardiovascular adjustments noted during information processing. Chapter 11 provides an excellent overview of theory and method related to the use of the electroencephalogram (EEG) in psychophysiological research. Emphasis is placed on recording techniques and the use of EEG in research on sleep, emotionality, and hemispheric asymmetry. In Chapter 12, Hugdahl reviews another measure of electrocortical activity, event-related potentials (ERP). He discusses in some detail the various components underlying the ERP waveform and their functional significance. Several brain imaging techniques are described in Chapter 13, including positron emission tomography, single photon emission computed tomography, and functional magnetic resonance imaging, and their application to the localization of brain function during emotion or cognitive processes. In Chapter 14, Hugdahl reviews three additional measures which have been used to index psychophysiological correlates of individual differences in personality, disorders of muscle tension, respiratory dysfunction, and eye movements. Finally, in the Epilogue, Hugdahl reemphasizes the utility of further interdisciplinary research to elucidate mind-body relationships with particular emphasis on the integration of psychophysiology with cognitive neuroscience, neuropsychology, clinical psychology, and psychiatry.

Throughout the volume, Hugdahl links the general concepts he describes with examples of relevant research, particularly studies that examine interrelations between central and peripheral processes (e.g., brain and heart). However, there is variability regarding the relative level of simplicity or complexity with which certain concepts are described, and the flow of ideas is not always entirely smooth. Nevertheless, it is indeed a challenge to provide an overview and integration of the wide array of concepts and techniques that Hugdahl has accomplished in this volume. As an introduction to the field of psychophysiology and description of its potential as a basis for future interdisciplinary research geared toward elucidating mind-body relations, this is an excellent resource. ❖

Shari R. Waldstein
Univ. of Maryland, Baltimore County
and
Louis A. Schmidt
Univ. of Maryland at College Park

Books Received

Biology and Physiology of the Blood-Brain Barrier: Transport, Cellular Interactions, and Brain Pathologies.
Pierre-Olivier Couraud and Daniel Scherman (Editors).
New York: Plenum, 1996, 387 pp., illus., index, $89.50.
ISBN: 0-306-45362-2.

Cardiothoracic Interrelationships in Clinical Practice.
Anthony M. Cosentino and Richard J. Martin.
Armonk, NY: Futura, 1997, 220 pp., illus., index, $47.00.
ISBN: 0-87993-655-X.

Cardiovascular Physiology. Fourth Edition.
David E. Mohrman and Lois Jane Heller.
New York: McGraw-Hill, 1996, 254 pp., illus., index, $27.00.
ISBN: 0-07-028025-8.

Epithelial Cell Culture.
Ann Harris (Editor).
Handbooks in Practical Animal Cell Biology.
New York: Cambridge University Press, 1996, 182 pp., illus., index, $21.95.
ISBN: 0-521-55991-X.

The Fish Immune System: Organism, Pathogen, and Environment.
George Iwama and Teruyuki Nakanishi (Editors).
San Diego, CA: Academic, 1996, 380 pp., illus., index, $89.95.
ISBN: 0-12-350439-2.

Lung Growth and Development.
John A. McDonald (Editor).
Lung Biology in Health and Disease Series/100, (Claude Lenfant, Exec., Editor).
Monticello, NY: Dekker, 1997, 752 pp., illus., index, $195.00.
ISBN: 0-8247-9772-8.

MCQs in Physiology.
Chris Browne and Tony Luff.
New York: Chapman & Hall, 1997, 170 pp., $16.00.
ISBN: 0-412-75640-4.

Particles in Our Air: Concentrations and Health Effects.
Richard Wilson and John Spengler (Editors).
Cambridge, MA: Harvard University Press, 1996, 259 pp., illus., index, $25.00.
ISBN: 0-674-24077-4.

Physiological Basis of Occupational Health: Stressful Environments.
Keizo Shiraki, Sueko Sagawa, and Mohamed K. Yousef (Editors).
Progress in Biometeorology, Vol. 11. H. Lieth (Series Editor).
New York: SPB Academic, 1996, 279 pp., illus., index, $103.00.
ISBN: 90-5103-127-0.

Primary Pulmonary Hypertension.
Lewis J. Rubin and Stuart Rich (Editors).
Lung Biology in Health and Disease (Claude Lenfant, Exec. Editor).
Monticello, NY: Dekker, 1997, 358 pp., illus., index, $155.00.
ISBN: 0-8247-9505-9.

Respiratory Physiology: People and Ideas.
John B. West (Editor)
Bethesda, MD: Am. Physio. Soc., 1996, 340 pp., illus., index, $85.00,
APS Member price: $55.25.
ISBN: 0-19-508081-5.

APS Sustaining Associate Members

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SmithKline Beecham
Wyeth-Ayerst Laboratories

Scientific Meetings and Congresses

1997

April 23-25

4th International Symposium: Multiple Risk Factors in Cardiovascular Disease, Washington, DC. *Information*: Giovanni Lorenzini Medical Foundation, 6550 Fannin, Suite 1287, Houston, TX 77030-2720. Tel: 713-797-0401; fax: 713-796-8853; e-mail: ajackson@bcm.tmc.edu.

May 13-17

Third National ISU Model Bioethics Institute, East Lansing, MI. *Information*: Gary Comstock, 402 Catt Hall, Iowa State University, Ames, IA 50011-1306. Tel: 515-294-0054; e-mail: comstock@iastate.edu; Website: **http://www.cep.unt.edu/news/bio.html**.

May 16-18

5th International Congress on Physical Education and Sport, Komotini, Greece. *Information*: Savvas Tokmakidis, Department of Physical Education and Sport Science, Democritus University of Thrace, Komotini, 69100, Greece. Tel: 30-531-21764; fax: 30-531-33582.

May 16-21

1997 International Conference, San Francisco, CA. *Information*: American Lung Association/American Thoracic Society, 1740 Broadway, New York, NY 10019-4374.

May 19-22

10th International Symposium on Radiopharmacology, Rapallo, Genoa, Italy. *Information:* CCI-Centro Congressi Internazionale s.r.l., CorsoF. Ferrucci, 6 • I – 10138 Torino (Italy). Tel: +39-11-434-79-00; fax: +39-11-434-77-60; e-mail: cci@fileita.it; Internet: **http://www.ibow.com/cci/**.

May 31-June 3

Applied Ethics in Animal Research: From Theory to Decision-Making, Albuquerque, NM. *Information*: John P. Gluck, Department of Psychology, University of New Mexico, Albuquerque, NM 87131. Tel: 505-277-3420; fax: 505-277-1394; e-mail: jgluck@unm.edu.

May 31-June 5

11th Annual Human Anatomy & Physiology Society Conference, Toronto, Ontario, Canada. *Information*: Henry Ruschin, Humber College, 205 Humber College Blvd., Etobicoke, Ontario, Canada M9W 5L7. Tel: 416-675-6622; fax: 416-675-2015; e-mail: ruschin @admin.humberc.on.ca.

June 2-6

24th Annual Meeting of the International Society for the Study of the Lumbar Spine, Singapore. *Information*: Edward Hanley, ISSLS, Sunnybrook Medical Centre, 2075 Bayview Avenue, Toronto, Canada M4N 3M5. Tel: 416-480-4833; fax: 416-480-6055.

June 7-11

Third Annual Workshop on Teaching Survival Skills and Ethics to Emerging Researchers, Wheeling, WV. *Information*: The Survival Skills and Ethics Program, University of Pittsburgh, 4K26 Forbes Quadrangle, Pittsburgh, PA 15260. Tel: 412-624-7098; e-mail: survival+@pitt.edu.

July 8-12

Symposium on Thermal Physiology, Copenhagen, Denmark. *Information*: Thermal Symposium '97, c/o DIS Congress Service, Herlev Ringvej 2C, DK-2730 Herlev, Denmark. Tel: 45-449-24492; fax: 45-449-25050.

July 17-19

International Potassium Channel Conference, Ulm, Germany. *Information*: Christiane Siemer, Department of Applied Physiology, University of Ulm, Albert Einstein Allee 11, 89081 Ulm, Germany. Tel: 49-731-502-3889; fax: 49-731-502-3260; Internet: **http://www.uni-ulm.de/uni/fak/medizin/grissmer/ipcc/ipcc.htm**.

July 27-August 1

16th International Congress of Nutrition, Montreal, Canada. *Information*: Congress Secretariat, IUNS 97, National Research Council Canada, Building M-19, Montreal Road, Ottawa, ON, Canada K1A 0R6. Tel: 613-993-7271; fax: 613-993-7250.

August 2-4

2nd World Conference of the International Society for Molecular Nutrition and Therapy, Winnipeg, Manitoba, Canada. *Information:* Grant N. Pierce, St. Boniface Hospital Research Centre, 351 Tache Ave., Winnipeg, Manitoba, Canada R2H 2A6. Tel: 204-235-3414; fax: 204-233-6723; e-mail: pierce@sbrc.umanitoba.ca.

August 11-15

Advances in Tissue Engineering, Houston, TX. *Information*: Rice University School of Continuing Studies, 6100 Main Street, Houston, TX 77005-1892. Tel: 713-520-6022; fax: 713-285-5213; e-mail: scs@rice.edu; Internet: **http://www.rice.edu/scs/tissue**.

September 7-10

Fifth World Congress of the International Society for Adaptive Medicine, Framingham, MA. *Information*: Sonya L. Herrin, Technical Organizer, Science and Technology Corporation, 101 Research Drive, Hampton, VA 23666-1340. Tel: 757-865-7604; fax: 757-865-8721; e-mail: herrin@stcnet.com; **Internet: http://www.stcnet. com/meetings/isam97.html**.

September 7-11

International Congress on Chronobiology, Paris, France. *Information*: Yvan Touitou, Service de Biochimie Medicale, 91 boulevard de l-Hopital, 75634 Paris Cedex 13 France. Tel: 33-01-40-77-96-63; fax:33-01-40-77-96-65; e-mail: touitou@ccr.jussieu.fr.

September 14-20

First International Congress of the International Society for Autonomic Neuroscience, Cairns, Australia. *Information*: Joel Bornstein, University of Melbourne, Parkville Vic 3052, Australia. Fax: 61-3-9344-5818; e-mail: joel@plexus.physiol.unimelb.edu.au.

September 17-20

AAEM 44th Annual Scientific Meeting and 20th Annual Electrodiagnostic Medicine Continuing Education Courses and Workshops, San Diego, CA. *Information*: AAEM, 21 Second Street SW, Suite 103, Rochester, MN 55902. Tel: 507-288-0100; fax: 507-288-1225; e-mail: aaem@aol.com.

September 25-28

International Sport Nutrition Conference, Williamsburg, VA. *Information*: Linda Bump, Human Kinetics, 1607 North Market Street, PO Box 5076, Champaign, IL 61825-5076. Tel: 800-747-5547 (extension 2239); fax: 217-351-2674; e-mail: lindab@hkusa. com.

October 2-5

Biomedical Engineering Society 1997 Annual Fall Meeting, San Diego, CA. *Information:* Department of Bioengineering, University of California at San Diego, 9500 Gilman Dr., La Jolla, CA 92093-0412. Tel: 619-822-1997; fax: 619-534-5722; e-mail: bmes97@ucsd. edu; Website: **http://bmes97.ucsd.edu**.