Navigating in the 2000s

It is a great honor to have been elected as the 73rd President of the APS. However, it is a daunting task to put forth a President’s Message to the membership during the first year of the 21st century. Having read the insightful and thoughtful writings of recent Presidents, I undertake this task with some misgivings. Their penetrating analyses and visionary constructs for the future of the Society have covered most of the important issues of concern to the members.

As a part-time sailor, let me take you on a cruise from one point with coordinates WHWB (Where Have We Been?) to another point with coordinates WAWB (Where Are We Bound?).

Where Have We Been?

As I write this, the APS Council has recently revised the draft strategic planning document that emerged from a 2.5-day strategic planning retreat held in November 1999. The participants in the strategic planning retreat, under the capable leadership of President Walter Boron, included the APS Council, members of the APS Long-Range Planning Committee, Chairs of the APS sections, the APS Executive Director and key APS staff leaders. The 2000 strategic plan will serve as a course chart for the Society to successfully navigate through the untraveled waters of the next decade.

The importance of this 2000 strategic planning retreat takes on even greater significance when one considers the impact of the previous APS strategic planning retreat in 1992 on the growth and accomplishments of the APS over the intervening years. The 1992 strategic plan set goals, objectives, and action items for the major areas of publications, meetings, education, public policy, membership, international physiology, governance, finance, awards and grants, and society organization. Since 1992, there has been regular review of progress toward meeting these goals, objectives, and actions in the form of an in-depth progress report in 1995, an APS Member Needs Assessment Survey in 1996-97 (4), and a detailed log of discussions by APS Council. When one reviews these materials, one is struck by the extraordinary high level of success the Society has achieved in meeting the goals, objectives, and action items set forth in the 1992 strategic plan.

Some examples are illuminating. In membership, an objective was to have at least 9,000 members by 2000 with 25% being under age 40 (continued on page 66)
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The Association of Chairs of Departments of Physiology annual survey was mailed to 157 physiology departments throughout the US, Canada, and Puerto Rico. A total of 99 surveys were returned, for a response rate of 63%. This rate is only slightly higher than the 1998 survey (60%). Of the 99 surveys returned, there were 65 public and 34 private medical schools, including four non-medical (which are public veterinarian schools).

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

(continued on page 60)
information, further data are provided on tenure, gender, ethnicity, and salary by number of years in rank.

The statistics are based on 99 responses (6 from Canada) but salary, tenure, gender, ethnicity, and number of years in rank results are calculated on the number of respondents providing this information. However, six institutions did not provide any faculty salary information and an additional two institutions omitted chair salaries only.

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) shows type of support, faculty salaries derived from grants along with negotiated indirect costs to the departments. Table 5 ranks responding Institutions according to their total dollars, research grant dollars, and departmental space. Space averages are presented as research, administration, teaching, and other.

Table 2. Average Salary by Number of Years in Rank

<table>
<thead>
<tr>
<th>Chairpersons</th>
<th>Professors</th>
<th>Associate Professors</th>
<th>Assistant Professors</th>
<th>Instructors</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Years</td>
<td>Salary</td>
<td>No. of faculty</td>
<td>Years</td>
<td>Salary</td>
</tr>
<tr>
<td>0-5</td>
<td>$144,725</td>
<td>22</td>
<td>0-5</td>
<td>$74,654</td>
</tr>
<tr>
<td>6-10</td>
<td>135,698</td>
<td>18</td>
<td>6-10</td>
<td>73,905</td>
</tr>
<tr>
<td>11-15</td>
<td>166,668</td>
<td>20</td>
<td>11-15</td>
<td>74,860</td>
</tr>
<tr>
<td>16-20</td>
<td>158,474</td>
<td>14</td>
<td>16-20</td>
<td>79,622</td>
</tr>
<tr>
<td>21-25</td>
<td>156,841</td>
<td>10</td>
<td>21-25</td>
<td>79,143</td>
</tr>
<tr>
<td>26+</td>
<td>166,893</td>
<td>4</td>
<td>26+</td>
<td>77,957</td>
</tr>
</tbody>
</table>

Type of Institution (n = 99)

<table>
<thead>
<tr>
<th>Support</th>
<th>Teaching Interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Pharmacy</td>
</tr>
<tr>
<td>Private</td>
<td>Other biomedical</td>
</tr>
<tr>
<td>DVM</td>
<td>Life science</td>
</tr>
<tr>
<td>Allied health</td>
<td>Bioengineering</td>
</tr>
<tr>
<td>65</td>
<td>86</td>
</tr>
<tr>
<td>34</td>
<td>26</td>
</tr>
<tr>
<td>4</td>
<td>47</td>
</tr>
<tr>
<td>47</td>
<td>26</td>
</tr>
</tbody>
</table>

Faculty Summary (n = 1,490)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian/Alaskan Native</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>93</td>
<td>19</td>
</tr>
<tr>
<td>Black, not Hispanic origin</td>
<td>22</td>
<td>9</td>
</tr>
<tr>
<td>Hispanic</td>
<td>106</td>
<td>19</td>
</tr>
<tr>
<td>White, not of Hispanic origin</td>
<td>861</td>
<td>196</td>
</tr>
<tr>
<td>Foreign national</td>
<td>74</td>
<td>14</td>
</tr>
</tbody>
</table>

Tenure status in each department by degree (n = 1,572)

<table>
<thead>
<tr>
<th>Degree</th>
<th>Tenured</th>
<th>Not Tenured</th>
<th>Not Eligible</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD</td>
<td>58</td>
<td>21</td>
<td>11</td>
<td>90</td>
</tr>
<tr>
<td>PhD</td>
<td>906</td>
<td>336</td>
<td>138</td>
<td>1,380</td>
</tr>
<tr>
<td>Both</td>
<td>38</td>
<td>19</td>
<td>11</td>
<td>68</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
<td>13</td>
<td>7</td>
<td>34</td>
</tr>
</tbody>
</table>

Student/Trainee Summary

<table>
<thead>
<tr>
<th>Total number of pre- and postdoctoral students/trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predoctoral male</td>
</tr>
<tr>
<td>Predoctoral female</td>
</tr>
</tbody>
</table>

Total number of foreign pre- and postdoctoral students/trainees

| Predoctoral male | 289 | Postdoctoral male | 412 |
| Predoctoral female | 225 | Postdoctoral female | 184 |

Ethnicity of each pre- and postdoctoral student/trainee

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Predoctoral</th>
<th>Postdoctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>69</td>
<td>48</td>
</tr>
<tr>
<td>Black, not Hispanic origin</td>
<td>34</td>
<td>49</td>
</tr>
<tr>
<td>Hispanic</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>White, not of Hispanic origin</td>
<td>426</td>
<td>332</td>
</tr>
</tbody>
</table>

Number of foreign pre- and postdoctoral students/trainees

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Predoctoral</th>
<th>Postdoctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>African</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>129</td>
<td>116</td>
</tr>
<tr>
<td>Central and South American</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>European, Canadian, Australian</td>
<td>91</td>
<td>71</td>
</tr>
<tr>
<td>Middle Eastern</td>
<td>23</td>
<td>15</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>
### Table 3. Salaries by Region

<table>
<thead>
<tr>
<th>Region</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chairmen</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Northeast:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NY, MA, RI,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CT, NJ, PA,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MD, DE, DC</td>
</tr>
<tr>
<td>Northeast</td>
<td>$163,582</td>
<td>$105,300</td>
<td>$218,300</td>
<td>22</td>
</tr>
<tr>
<td>Midwest</td>
<td>160,775</td>
<td>71,000</td>
<td>235,307</td>
<td>25</td>
</tr>
<tr>
<td>South</td>
<td>151,096</td>
<td>48,955</td>
<td>247,000</td>
<td>30</td>
</tr>
<tr>
<td>West</td>
<td>159,455</td>
<td>91,027</td>
<td>251,000</td>
<td>10</td>
</tr>
<tr>
<td>Canada/Puerto Rico</td>
<td>106,514</td>
<td>89,188</td>
<td>125,000</td>
<td>6</td>
</tr>
<tr>
<td><strong>Professors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Midwest:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IL, WI, IA,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MO, KS, NE,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ND, SD, MN</td>
</tr>
<tr>
<td>Northeast</td>
<td>105,722</td>
<td>41,616</td>
<td>250,000</td>
<td>166</td>
</tr>
<tr>
<td>Midwest</td>
<td>105,019</td>
<td>38,000</td>
<td>226,013</td>
<td>182</td>
</tr>
<tr>
<td>South</td>
<td>96,371</td>
<td>36,400</td>
<td>182,519</td>
<td>168</td>
</tr>
<tr>
<td>West</td>
<td>113,558</td>
<td>46,550</td>
<td>259,900</td>
<td>82</td>
</tr>
<tr>
<td>Canada/Puerto Rico</td>
<td>85,232</td>
<td>45,570</td>
<td>138,000</td>
<td>60</td>
</tr>
<tr>
<td><strong>Associate Professors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>South:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>VA, WV, KY,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TN, NC, SC,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GA, FL, AL,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MS, AR, LA,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OK, TX</td>
</tr>
<tr>
<td>Northeast</td>
<td>77,976</td>
<td>47,769</td>
<td>106,610</td>
<td>101</td>
</tr>
<tr>
<td>Midwest</td>
<td>74,016</td>
<td>36,986</td>
<td>121,445</td>
<td>129</td>
</tr>
<tr>
<td>South</td>
<td>74,170</td>
<td>44,215</td>
<td>112,711</td>
<td>105</td>
</tr>
<tr>
<td>West</td>
<td>71,226</td>
<td>47,532</td>
<td>108,201</td>
<td>46</td>
</tr>
<tr>
<td>Canada/Puerto Rico</td>
<td>65,480</td>
<td>54,718</td>
<td>78,980</td>
<td>19</td>
</tr>
<tr>
<td><strong>Assistant Professors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>West:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AK, HI, MT,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>WY, CO, NM,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AZ, ID, WA,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OR, CA, UT</td>
</tr>
<tr>
<td>Northeast</td>
<td>59,030</td>
<td>22,382</td>
<td>95,400</td>
<td>83</td>
</tr>
<tr>
<td>Midwest</td>
<td>63,267</td>
<td>36,750</td>
<td>92,700</td>
<td>82</td>
</tr>
<tr>
<td>South</td>
<td>56,574</td>
<td>25,579</td>
<td>76,342</td>
<td>92</td>
</tr>
<tr>
<td>West</td>
<td>57,696</td>
<td>21,400</td>
<td>91,152</td>
<td>33</td>
</tr>
<tr>
<td>Canada/Puerto Rico</td>
<td>50,767</td>
<td>20,000</td>
<td>59,000</td>
<td>12</td>
</tr>
<tr>
<td><strong>Instructors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>45,043</td>
<td>30,000</td>
<td>81,075</td>
<td>8</td>
</tr>
<tr>
<td>Midwest</td>
<td>36,449</td>
<td>19,200</td>
<td>49,822</td>
<td>12</td>
</tr>
<tr>
<td>South</td>
<td>37,414</td>
<td>18,658</td>
<td>53,000</td>
<td>24</td>
</tr>
<tr>
<td>West</td>
<td>37,758</td>
<td>33,000</td>
<td>42,179</td>
<td>5</td>
</tr>
<tr>
<td>Canada/Puerto Rico</td>
<td>50,212</td>
<td>40,000</td>
<td>60,425</td>
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</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Source of Support</th>
<th>Predoctoral</th>
<th>Postdoctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional</td>
<td>177</td>
<td>52</td>
</tr>
<tr>
<td>Research grants</td>
<td>240</td>
<td>450</td>
</tr>
<tr>
<td>Private foundations</td>
<td>10</td>
<td>56</td>
</tr>
<tr>
<td>Home (foreign) governs</td>
<td>19</td>
<td>32</td>
</tr>
<tr>
<td>Other</td>
<td>24</td>
<td>20</td>
</tr>
</tbody>
</table>

### Predoctoral Trainee Completions

Number of trainees who have completed doctoral work during the year ended June 30, 1999 (n = 84)

**Predoctoral male** 139  **Predoctoral female** 101

### Foreign National predoctoral trainee completions:

<table>
<thead>
<tr>
<th>Source of Support</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predoctoral Postdoctoral</td>
<td>240</td>
<td>450</td>
</tr>
<tr>
<td>Postdoctoral</td>
<td>81</td>
<td>81</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Source of Support</th>
<th>Predoctoral (n = 87)</th>
<th>Postdoctoral (n = 81)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predoctoral</td>
<td>$15,567.44</td>
<td>$27,178.89</td>
</tr>
</tbody>
</table>

### Space Controlled by Department (n = 98)

<table>
<thead>
<tr>
<th>Source of Support</th>
<th>Predoctoral</th>
<th>Postdoctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>16,869</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>2,726</td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>2,862</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>2,859</td>
<td></td>
</tr>
<tr>
<td>Total space</td>
<td>23,198</td>
<td></td>
</tr>
</tbody>
</table>

### US citizen/resident alien predoctoral trainee completions:

<table>
<thead>
<tr>
<th>Source of Support</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predoctoral Postdoctoral</td>
<td>240</td>
<td>450</td>
</tr>
<tr>
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<td>81</td>
<td>81</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
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<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predoctoral Postdoctoral</td>
<td>240</td>
<td>450</td>
</tr>
<tr>
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<td>81</td>
<td>81</td>
</tr>
</tbody>
</table>

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<table>
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<th>Postdoctoral (n = 81)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>$27,178.89</td>
</tr>
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### Space Controlled by Department (n = 98)

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<tr>
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<th>Postdoctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
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<tr>
<td>Administration</td>
<td>2,726</td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>2,862</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>2,859</td>
<td></td>
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ACDP 1999 Survey Results

Salary Comparison by Title

Chairpersons by Institution

Professors by Institution
Financial Information

Percentage of total faculty salaries derived from research grants (not including fringe benefit amounts): 30.7% (n = 76)

Current fringe benefit rate most frequently used for primary faculty: 24.4% (n = 89)

Percentage of allocated faculty salary dollars raised from grants, etc., directly returned to your department: 77.1% (n = 48)

Federally negotiated indirect cost rate for FY 98-99 on campus: 50.6% (n = 84)

Federally negotiated indirect cost rate for FY 98-99 off campus: 26.6% (n = 61)

Percentage of indirect costs returned to your department: 17.5% (n = 42)
### Table 5. Complete Ranking According to Total Dollars

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and 20% being female. In 1992, membership was 7,288 with 18% under age 40 and 13% being female; in 1999, membership was 9,133 with 23% under age 40 and 18% being female. Another objective was to admit as regular members applicants from outside The Americas. During President L. Gabriel Navar’s tenure, the Bylaws were amended at the Experimental Biology '99 meeting to remove geographic restrictions on regular membership.

In society organization, the objectives were to establish both a marketing program and an education program, to encourage formation of regional chapters, and to increase participation of women, under-represented minorities, and younger members on committees. Individuals were hired as the marketing manager and the education officer in 1993, and regional chapters have been established in Ohio, Iowa, Wisconsin, Nebraska, Oklahoma, and the Gulf Coast area. As a former chair of the Committee on Committees, I was impressed by the large number of highly qualified women, under-represented minorities, and younger candidates put forth by the sections for committee assignments; the problem was not to identify such individuals but, rather, to find positions for all of them.

In publications, objectives included maintenance and promotion of excellence in the publication program, establishment of a long-term policy regarding self-sufficiency of individual journals, and exploration of electronic publication of APS journals. The excellence of the Society’s journals is repeatedly emphasized in membership surveys as of great importance. The Society, through its Publications Committee, ably chaired by Dale Benos, and its new Publications Manager and Executive Editor, Margaret Reich, expends great effort.

Gerald F. DiBona will be installed as the 73rd President of The American Physiological Society at the Society’s spring meeting this month in San Diego, California.

DiBona is Professor and Vice Chairman of the Department of Internal Medicine at the University of Iowa College of Medicine in Iowa City, IA, where he has served since his appointment in 1969. Born in Cambridge, Massachusetts, he attended Harvard College, earning the AB in mathematics in 1960, and Tufts University School of Medicine, earning the MD cum laude in 1964. He received his clinical training in internal medicine at the Hospital of the University of Pennsylvania, Philadelphia from 1964-67. He returned to Boston for clinical and research training in nephrology and renal physiology at the Peter Bent Brigham Hospital and Harvard Medical School with John Merrill and Donald Oken from 1967-69. In 1969, he moved to the Department of Internal Medicine at the University of Iowa College of Medicine where he was appointed Assistant Professor in 1969, Associate Professor in 1972, and Professor in 1975. In 1977, he was appointed and continues to serve as Vice Chairman of the Department of Internal Medicine and Chief of the Medical Service, Iowa City Veterans Administration Medical Center. In 1997, he was appointed Professor, Department of Physiology and Biophysics, University of Iowa College of Medicine. In 2000, he was appointed Foreign Adjunct Professor, Karolinska Institute, Stockholm, Sweden.

During his nephrology fellowship, DiBona’s research focused on renal micropuncture studies of the pathogenesis and recovery from experimental acute renal failure. After moving to Iowa, his research centered on the neural control of renal function. DiBona’s work demonstrated that the renal sympathetic nerves directly influence the function of each of the major renal effectors via direct and specific innervation. Intensities of renal sympathetic nerve stimulation that were subthreshold for effects on the renal vasculature or the juxtaglomerular apparatus directly increased renal tubular sodium and water reabsorption in multiple nephron segments without accompanying alterations in glomerular filtration rate, renal blood flow or hormonal release. This effect was shown to be mediated by $\alpha_1$-adrenoceptors located on the basolateral membrane of renal tubular epithelial cells whose stimulation increased basolateral sodium pump activity. The importance of this concept of low-intensity renal sympathetic nerve activity was expanded by the demonstration that during clinical conditions of increased renal sympathetic nerve activity and renal sodium retention (e.g., congestive heart failure), a substantial portion, circa 40%, of the excess renal sodium retention in these conditions was dependent on intact renal sympathetic innervation. Additional studies using measurements of single renal nerve fiber activity, analysis in the frequency domain and mathematical modeling of synchronized renal sympathetic nerve discharge have provided further evidence for the existence of functionally specific subgroups of renal sympathetic nerve fibers that are selectively targeted to the vessels, tubules or the juxtaglomerular granular cells.

Following a sabbatical period at the University of Göteborg, Göteborg, Sweden, DiBona incorporated the...
effort and commits substantial resources to continuously improving the journal program. For want of a better system and for the important reason that they do permit comparison between journals (i.e., precisely what authors, subscribers, and readers do), impact factors have been relied on heavily for the assessment of quality of the journal program. *Physiological Reviews* is the leader among physiological journals while the *American Journal of Physiology* (AJP) (consolidated) ranks lower, beneath *Journal of Neurophysiology*, *Journal of Physiology*, and *Journal of General Physiology*. However, this is unlikely to be a true representation of the impact factors for each of the individual AJP journals. Unfortunately, it has not been possible to assess the scientific impact for each of the individual AJP journals through the impact factor, because the Institute for Scientific Information (ISI) does not track citation information for each of the individual AJP journals. In general, authors cite articles from the individual AJP journals by using the volume and page numbers of the consolidated AJP; hence, over the years ISI has only provided impact factors for the consolidated AJP. To address this issue, the Society requested ISI to provide citation information on individual AJP journals in comparison with other journals in their scientific content area. Due to study design, this citation information was not in the form of the widely understood and recognized impact factors but rather the number of times an individual AJP journal bibliographic published item was cited in the ISI database of approximately 4,500 biomedical journals over the 10-year period 1987 to 2000.

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1996 [mean citation score; see http://www.faseb.org/aps/cstats.htm for complete data; (5)]. However, these data allowed a comparison between individual AJP journals wherein AJP:Renal Physiology (20.55) and AJP:Cell Physiology (20.14) topped the list. In addition, comparisons between competitors were possible; e.g., Journal of Biological Chemistry (29.01), Journal of Clinical Investigation (38.44), and Cell (134.34). Recently, after extensive discussions with ISI, the Society successfully negotiated an arrangement whereby using a uniform single citation format for individual AJP journals, the usual, commonly recognized and understood impact factor will be calculated for the individual AJP journals (6). The ready availability and publication of impact factors for the individual AJP journals will be an important step in maintaining and promoting excellence for the Society’s journals by providing authors, subscribers, and readers the same assess-

ment of scientific impact they are using for other journals in the field.

Self-sufficiency of individual journals was achieved as a result of a broad-based program involving increased collection of page charges, fixed budgets for editorial office expenses including honoraria, change of printer with renegotiated printing costs, re-evaluation of subscription price structure, and obligatory editing on disk. Electronic publication was pursued vigorously and various members of the Society’s journal program have appeared online: APStracts (1994), Journal of Applied Physiology (1996), The Physiologist (1996), Journal of Neurophysiology (1997), individual and consolidated American Journal of Physiology (1998), Physiological Reviews (1998), News in Physiological Sciences (1999), and Physiological Genomics with online publication of articles prior to print publication (1999). More recently, APS Central, an electronic manuscript submission and review server (http://www.apscentral.org), was launched with Physiological Genomics and the Journal of Applied Physiology. Additional journals will be added during the coming year.

From the perspective of reviewing the Society’s current status against the goals, objectives, and action items contained in the 1992 strategic plan, one can only be impressed at the extensive progress that has been made. Importantly, the 1992 strategic plan served as an extremely effective navigation chart to move the Society from where it was then to where it is now. Of course, this does not mean that everything has been accomplished and that further growth and development is not needed. The Society’s vision for the future must be ever changing in adaptation to the changing world in which we live.

Where Are We Bound?

During the recent 1999 strategic planning retreat, the current status of the Society, greatly influenced by the extensive progress made on the goals, objectives, and action items noted in the 1992 strategic plan, was examined as a basis for innovative planning for the future. Focus was again placed in the major areas—publications, meetings, education, public policy, membership, international physiology, governance, finance, awards and grants, and society organization—as they represent the breadth and scope of Society activities. The final version of the strategic plan, as approved by the APS Council, appears on pages 71 in this issue of The Physiologist (2).

It must be realized that the 2000 strategic plan is a vision concerning the future of the Society. The realization of this vision will occur over time as the APS Council considers the recommendations of the various task forces charged with exploring the details, including financial, of implementation of the elements of the 2000 strategic plan. As with the 1992 strategic plan and its overall impact on the APS, the

The 2000 strategic plan will serve as a course chart for the Society to successfully navigate through the untraveled waters of the next decade.

The Society’s vision for the future must be ever changing in adaptation to the changing world in which we live.

events will play out over several Presidential terms. President Walter Boron has thoughtfully commented on the 2000 strategic plan (2). As the initial phases of implementation of the 2000 strategic plan will commence during my term as APS President, I wish to make some personal comments. The Society remains committed to leadership in integrated physiological sciences, with major expression of this through its journal program and meetings. As reflected by our newest journal, Physiological Genomics, the Society is committed to maintaining and expanding its role as a leader in this rapidly moving field by providing the important integrative coupling between a gene and its function within an intact organism. It is the intent to make Physiological Genomics a journal of very high impact and profile. Other considerations involve efforts to maximize the efficiency and the speed of the review and publication process (via expansion of APS Central), to reduce publication costs for members, and to develop a new paradigm for ensuring financial self-sufficiency of electronic and print publications. Meetings with newer innovative formats that will focus on physiological genomics (among other areas) are envi-
The Society remains committed to leadership in integrated physiological sciences, with major expression of this through its journal program and meetings.

stipulation that only that amount required to balance the budget would be withdrawn with the remainder continuing in the actively managed investment accounts (4% spending rule). Yet only a small portion of this 4% spending rule has been spent as operating income.

While the Society is fiscally sound and continues to enjoy substantial growth through prudent investment practices, it has been slow to develop new programs or greatly expand membership benefits and services. Why is this? Is it because there are no programmatic initiatives or additional member benefits that have been deemed worthy of support? No! Certainly, the program of increased member benefits put forth by Walter Boron in his Presidential Message contains many elements worthy of support (3). In addition, the few preliminary examples from the 2000 strategic plan presented above are also worthy of support. Isn’t there a pressing need to expand staff and resource commitment to existing programs, such as meetings, publications in the electronic age, education, marketing, and public affairs? Yes! Reducing high turnover with long-duration vacancies in the copy editing area of publications would contribute to decreasing time to publication. There appear to be several other possible explanations for this hesitancy in the development of new programs.

First, while the Society’s assets give it a wealthy appearance, it is less appreciated that the Society’s annual operating budget (1) is approximately $14.2 million ($107,571 from the 4% spending rule being required to balance the 1998 budget), with the journal program accounting for approximately 75-80% of this, showing annual income of $11.1 million versus annual expenses of $10.7 million. Thus, the perception by some that the Society is exceedingly wealthy by virtue of its rich profits derived from the journal program is not accurate. This perception may have become more acute with recent introduction of a manuscript processing fee. However, journal profits, including income from the manuscript processing fee, are used to support new publication initiatives and member benefits, such as the development of *Physiological Genomics*, APS Central, and free color publication to members, in addition to supporting other Society programs. As noted by the Finance Committee (1), “journal publication is the major source of revenue for the Society and is key to our financial well-being.” The strong financial position of the Society’s journal program with its continued profitability is a major strength of the Society. However, the fact that it is the largest and only continuously reliable source of recurring revenue for the Society leads to a natural concern when its position is threatened by external forces.

Second, in my view, there seems to be the looming specter of the unknown: the threat of negative financial impact of electronic publication, including, but not limited to, PubMed Central, on the Society’s journal program income. As the Society’s journal program represents such a large portion of its annual operating budget and its profit margin is critically important to the support of other Society programs, there is evident concern over this issue. As noted by the Finance Committee (1) “members are charged (for the journals) at a reduced rate and most of the profitability is derived from sale of subscriptions to institutions.” What are institutions going to do? At the outset, let it be said that definitive data that could be used to guide Society actions are not available. However, many simulations and projected scenarios tend to predict decreasing journal program income with reductions in subscriptions, both institutional and individual. Although reduced subscriptions lead to reduced costs by virtue of reduced paper, printing, and mailing costs, certain costs such as manuscript processing, peer review, redactory, etc. are predicted to decrease to a lesser extent as some of those services will still be required. At this juncture, a suitable journal pricing structure that will sustain journal profitability in the full electronic era has not been easy to define. Since journal profitability equates to support for other Society
programs, a decline in journal profitability may lead to increasing use of the 4% spending rule funds. Since, for the 1999 budget year, the 4% spending rule yields $1.2 million of which only $82,076 is budgeted for use, why should this be a problem? The success of the annual investments (upon which the 4% spending rule is based) is dependent on the stock market where volatility is not unknown; this engenders a conservative posture.

Third, the majority of Society members (including APS Council and committee members) are, or have been, active investigators, largely dependent on obtaining competitive peer reviewed funding to sustain and expand their research programs. It would be very difficult for most of us, within our academic institutions, to expand an existing program or develop a new program in the absence of a ready source of continuous funding or prospects of the same that would appear convincing to a departmental chair or a dean. We function in an environment where most programs are expected to “sail on their own bottom,” if not immediately then within a relatively short period of time. This is not a conscience that fosters rampant and expansive growth and developmental activity.

One solution would be for the Society to emulate Christopher Columbus who, when he left, didn’t know where he was bound; when he got there, didn’t know where he was and when he returned, couldn’t tell anybody where he had been......but he did the whole thing on somebody else’s money! In the case of the Society, the excellent application of the principles of strategic planning enables us to know where we have been, where we are now and how we got here, and where we are bound. However, the major difference is that the Society must “do the whole thing on its own money”—and some aspects of that are a bit unclear just now.

It will likely take some time until the full fiscal impact of electronic publication on the profitability of the Society’s journal program and, thus, on the overall annual operating budget of the Society is known. This will permit the Society to carefully assess the situation and, with the support of its investment portfolio, make appropriate plans for the coming years. Thus, it appears that the Society will, perhaps not appropriately, continue with a cautiously optimistic posture in regard to expansion, in an environment where most programs are expected to “sail on their own bottom,” if not immediately then within a relatively short period of time. This is not a conscience that fosters rampant and expansive growth and developmental activity.

The 2000 strategic plan will serve as a course chart for the APS to successfully navigate through the untraveled waters of the next decade. One part of the excitement of cruising is the opportunity to explore new areas. I look forward with great anticipation to participating in this voyage over the next year.

References
In June of 1992, APS published the Society’s first Strategic Plan (2), a plan that the Council intended to follow until the year 2000. That Plan provided the blueprint for eight years of growth and development that has served to put APS in a very strong position. Membership in the Society has gone beyond our goal of 9,000 members by the year 2000; the APS journals have all been published online; and, thanks to the addition of a full-time Education Officer, our education efforts have expanded to encompass all levels of education from kindergarten to medical and graduate school. These represent several of the positive elements arising from the 1992 Strategic Plan.

When the APS Council met for its 1992 Strategic Planning Retreat, Council was spurred on by the words of Norman Alpert (then-Chair of the APS Finance Committee), who asked whether APS wished to be a rich society with no members or a Society that utilized its resources to benefit the membership and the discipline of physiology. Indeed, the Society has used its financial and staff resources to benefit physiology during the past eight years. Moreover, the stock market has provided the Society with an even larger endowment that we can use to benefit physiologists. In my April 1999 Presidential message (1), I discussed extensively the significance of the Society's financial resources.

In November 1999, the Society held a second Strategic Planning Meeting. We met in Kiawah Island, South Carolina, to develop a new plan to lead the Society for the next several years. To encourage input from a broad spectrum of the membership, the Council invited members of the Section Advisory Committee and Long-Range Planning Committee to participate in the meeting. Consequently, I asked Brian Duling (Chair, Long Range Planning Committee) and John Hall (Chair, Section Advisory Committee) to assist me in coordinating the meeting. We also benefited from the involvement of L. Gabriel Navar (APS Past-President), Gerald DiBona (APS President-elect), and Martin Frank (APS Executive Director). As was the case in 1992, the Society enlisted the expertise of James Whitehead, Executive Vice President of the American College of Sports Medicine, to serve as the meeting facilitator.

Having met in November to develop the 2000 Strategic Plan, the Council met again in February in Bethesda to finalize the goals and objectives of the Strategic Plan. Below, you will find the Plan that will guide the Society for the next five to eight years. Its implementation will not occur overnight but will require the efforts of the membership and the elected leadership. As a first step, we will institute a number of Task Forces to provide the Society with the input and advice needed to make the 2000 Strategic Plan as successful as the 1992 Plan.

You will note several new and exciting initiatives, including proposals to increase the benefits associated with APS membership, to develop and publish a “living/evolving” handbook of physiology, to develop recurring conferences on translational and physiological genomics research, to work to enhance the prestige of physiology in the academic environment, and to create a Communications/Media Office to enhance the public’s image of physiology. I strongly urge you to review the plan and provide the elected leadership with your input. We cannot make the Plan or the Society a success without your input and participation. Please send your comments to Martin Frank (mfrank@aps.faseb.org), myself (walter.boron@yale.edu) or any member of Council.

Walter F. Boron, MD, PhD
APS President


APS Mission Statement
The APS provides leadership in the life sciences by promoting excellence and innovation in physiological research and education and by providing information to the scientific community and to the public.

2000 Strategic Plan
Approved February 8, 2000 by Council

Publications

Goal: To provide the highest quality publications with the greatest impact in the life sciences.

Objectives:
1. To make each individual APS journal the best in its field.
2. To make Physiological Genomics a high-impact, high-profile journal.
3. To maximize the efficiency and speed of the review and publication process.
4. To develop a new paradigm for ensuring financial stability and increased accessibility of electronic and print publications.

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5. To reduce publication costs in APS journals for members.
6. To develop and publish a “living/evolving” electronic handbook of physiology.
7. To make innovative use of electronic publications to expand content (e.g., data sets, multimedia, etc.).
8. To highlight translational research in APS journals.

Meetings

Goal: To provide meetings of the highest quality and impact that integrate the life sciences.

Objectives:
1. To utilize APS meetings to seed new/exciting areas of research.
2. To make the APS meetings so outstanding that they are essential for new investigators, scientific leaders, and those that integrate across the life sciences.
3. To determine the appropriateness and feasibility of developing an APS Conference Center.
4. To develop translational research meetings that bridge physiology with clinical medicine.

Education

Goal: To promote awareness, understanding, and education in physiology at all levels.

Objectives:
1. To promote physiology education at all educational levels.
2. To provide effective continuing education opportunities for physiologists engaged in research and/or teaching.
3. To promote interest in and understanding of careers in the physiological sciences.
4. To enhance the prestige of physiology in schools, universities, and colleges.

Advocacy and Public Policy

Goal: To develop a dynamic advocacy program with strong member involvement to educate and inform the public, the government, and other key audiences about the importance of physiology and the critical role of animal research.

Objectives
1. To educate the public about the central role of physiology in health and disease.
2. To expand APS advocacy for federal research funding.
3. To educate the public, government agencies, and legislators regarding the importance of animal research.
4. To increase opportunities for participation by APS members in public education, advocacy for research funding, and in support of animal research.
5. To expand the role of APS in responding to areas of controversy in science and medicine.
6. To enhance the prestige of physiology in schools, universities, and colleges.

3. To refine affiliate membership benefits to make them appropriate for the constituency.
4. To provide the membership with greater benefits.

**International Physiology**

**Goal:** To promote global interaction in the physiological sciences.

**Objectives:**
1. To increase the participation of international colleagues at APS meetings.
2. To increase the participation of international members in other APS activities (e.g., committees, sections, governance).
3. To assist in the emergence of physiology in developing countries, particularly in Latin America.

**Governance**

**Goal:** To ensure that governance adequately represents the membership.

**Objectives:**
1. To ensure appropriate representation by all member constituencies.
2. To involve more students in the governance of APS.
3. To encourage the establishment of new interest groups and sections.
4. To improve communications among Council, Committees, and Sections.

**Membership**

**Goal:** To increase the breadth and stature of membership in the APS and to improve membership benefits.

**Objectives:**
1. To have 12,500 members by the year 2005.
2. To attract life scientists and educators to APS membership through targeted membership campaigns.
3. To refine affiliate membership benefits to make them appropriate for the constituency.
4. To provide the membership with greater benefits.

**Finance**

**Goal:** To develop and implement a dynamic plan for sustained fiscal health.

**Objectives:**
1. To use operating revenue and gains from APS investments to fund APS general operations and new initiatives at a level sufficient to accomplish the objectives of the strategic plan.
2. To identify and develop new sources of revenue.
3. To determine the appropriateness and
feasibility of establishing an APS foundation.
4. To implement a process for proposing, authorizing, and measuring the goals and objectives of each APS operating unit (e.g., offices, committees, sections, etc.).

Awards and Grants

**Goal:** To strengthen the discipline of physiology through awards that support, recognize, and publicize the scholarly and research activities of the membership.

**Objectives:**
1. To attract the next generation of physiologists and foster their early career development.
2. To recognize excellence in scholarship and research of members at all career levels.
3. To establish a planned giving program to facilitate the expansion of the APS awards and grants program.

Society Organization

**Goal:** To expand and improve the APS organization to meet the growing needs of APS and its Strategic Plan.

**Objectives:**
1. To create a communications/media office.
2. To divide the existing Membership Services Office into a meetings office and a membership office.
3. To increase opportunities for member involvement in the committees and organization of APS.
4. To encourage the affiliation of members with a section.
5. To encourage the formation of sections in emerging areas of physiology.
6. To continue to encourage the formation of local chapters.
The American Physiological Society announces the results of the election of officers for 2000.

John E. Hall, Department of Physiology, University of Mississippi, is the new President-Elect.

The two newly elected Councillors taking office on April 18, 2000 are Douglas C. Eaton, Department of Physiology, Emory University, and Steven C. Hebert, Department of Medicine, Vanderbilt University. The Councillors will serve for three years.

President-Elect

John E. Hall

Councillors

Douglas C. Eaton

Steven C. Hebert

Now Available to APS Members

The American Physiological Society (APS) and Society For Neuroscience (SFN) are pleased to announce the following special offer to members from both Societies. As a mutually agreeable exchange, Members of APS can now receive the same special subscription rate to The Journal of Neuroscience as do the Members of SFN...and Members of SFN can receive the same special subscription rate to the Journal of Neurophysiology as do the Members of APS.

The Journal of Neuroscience covers the full spectrum of neuroscience research—from molecular and cellular neurobiology to developmental neuroscience and behavioral and systems neuroscience. No other peer-reviewed journal in the neurosciences more fully encompasses this multidisciplinary science than The Journal of Neuroscience, offering readers continuous access to the latest work in their areas of specialization and adjacent fields. The Journal’s online-only section, “Rapid Communications,” further expedites dissemination of the latest advances in neuroscience through posting of short papers on The Journal of Neuroscience Today.
On January 1, 2000, Susan M. Barman succeeded Kim E. Barrett as Chair of the APS Women in Physiology Committee. Barman has served on this Committee for three years before becoming Chair. As Chair of the Women in Physiology Committee, Barman will be an ex officio member of the APS Awards Committee and a member of the FASEB Excellence in Science Award Committee.

Barman is a Professor in the Department of Pharmacology & Toxicology at Michigan State University in East Lansing, MI. She received her doctoral degree in Physiology from Loyola University School of Medicine in Maywood, IL in February 1976. Her graduate work on spinal cord control of sympathetic nerve activity and regional blood flow was completed under the direction of Robert D. Wurster. It was during her graduate training that Barman became an APS member. Her postdoctoral work was completed at Michigan State University, Department of Pharmacology, in Gerard L. Gebber’s laboratory. The collaborative work with Gebber on brainstem control of sympathetic outflow to cardiovascular targets has continued for almost 25 years.

Barman’s primary research focus has been on identifying neurons in various brainstem regions (rostral and caudal ventrolateral medulla, caudal medullary raphe, medullary lateral tegmental field, caudal ventrolateral pons, and rostral dorsolateral pons) whose naturally occurring discharges are correlated to the cardiac-related and 10-Hz rhythmic discharges of sympathetic nerves. Her work has revealed that these two rhythms in sympathetic nerve discharge are generated by different groups of brainstem neurons, but the outputs of both generators converge onto a common pool of bulbospinal neurons that carry information to spinal preganglionic sympathetic neurons. Her research has been rewarded with a National Institutes of Health Method to Extend Research in Time (MERIT) Award.

One of the functions of the Women in Physiology Committee is to coordinate activities with other comparable committees within the FASEB organization. Barman is eager to work with the ASPET Committee on Women in Pharmacology. Because Barman also serves as a member of that committee, this should be quite easy. The ASPET committee typically sponsors a session at Experimental Biology (EB) dealing with issues of particular importance to women in science. One plan is to have the Women in Physiology Committee work with the ASPET committee in this activity at future EB meetings.

Barman is also looking forward to working with the Society’s Education Office, notably Marsha Maytas, in continuing the very successful Mentoring Workshop/Luncheon at EB meetings that has been used as a forum to allow young scientists to meet with established scientists to discuss education, employment, and professional opportunities for physiologists today. Barman will also work toward identifying new participants (both mentees and mentors) for the Mentoring Program that was developed to encourage and support women physiologists who are still in training or beginning new positions in academia or industry. Experienced mentors can provide valuable advice on how to make the most of graduate and professional experiences.

The Women in Physiology Committee also coordinates the Council of Committees’ professional Opportunity Awards. The selection process involves a critical review of abstracts and supporting letters from over 120 candidates.

As the APS representative on the FASEB Excellence in Science Award Committee Barman will make a major goal of her tenure as Chair of Women in Physiology to have an APS member become the recipient of this prestigious award. Although the Chair of the Women in Physiology Committee is precluded from coordinating a nomination because of the conflict of interest that this represents, efforts are underway to identify potential candidates. This prestigious award, funded by Eli Lilly and Company, is given annually to a woman who has made outstanding contributions to research in the biomedical sciences.

In addition to serving as Chair of the Women in Physiology Committee, Barman also is Chair of the Steering Committee of the Central Nervous System Section of the APS. She recently completed service on the Joint Program Committee of APS. She has also served on the Editorial Board of AJP: Heart and Circulatory Physiology, and she has frequently reviewed for other APS journals.

Anyone that is interested in assisting the Women in Physiology Committee in promoting the discipline of physiology as a rewarding career to young women and in encouraging their active participation in the society should contact Barman or any other member of the Committee. A list of members and their contact information can be found on the Web at: http://www.faseb.org/aps/committee/members/women.htm.
Celia Sladek was elected by the members of the Section Advisory Committee (SAC) to succeed John Hall as Chair of SAC effective January 1, 2000. SAC is composed of the Heads of each of the APS sections, and the Chair serves as the Committee’s representative to Council. Sladek has just completed a three-year term on Council and served on SAC from 1993-1996 as head of the CNS Section.

Sladek has been Professor of Physiology at the Chicago Medical School since 1991. Prior to that she was Professor of Neurology and Neurobiology and Anatomy at the University of Rochester where she was on the faculty for 18 years. She received her PhD in Physiology from Northwestern University and spent three years as Assistant Professor of Physiology at the University of Illinois (Chicago) before joining the Rochester faculty.

Sladek’s primary research interests are the neural and endocrine mechanisms responsible for water and electrolyte homeostasis. In these endeavors she has focused on the osmotic and neurotransmitter regulation of vasopressin and oxytocin gene expression and secretion. Currently, the exciting findings in the laboratory relate to interactions between ionotropic and metabotropic neurotransmitters and the effects of steroid hormones on the hypothalamus.

SAC represents a key and central component of the APS organization. With the changes in APS governance over the past 10 years, the sections have been given more and more responsibility for developing the scientific content of the Experimental Biology (EB) meeting and for involving the membership in all APS functions. Affiliating with one or more sections and actively participating in the activities of these sections represents a mechanism by which individual members can get involved in APS and have their ideas heard. Each section has a Section Program Committee that is responsible for developing symposia, featured topics, and poster discussion sessions at EB. In addition, each year each section selects a Distinguished Lecturer. The chair of the Section Program Committee represents that section on the Joint Program Committee of APS. Thus, an effective mechanism for influencing the content of EB is by actively participating in the programming activities of the sections. Each section also sends a representative to the Committee on Committees and nominates individuals to serve on all the other APS committees. The SAC also serves as the nominating committee for the elected officers of APS (President and Councillors). Thus, section involvement represents the mechanism by which individuals can influence the full range of APS activities.

To affiliate with a section, contact Linda Allen, Membership Services Manager, lallen@aps.faseb.org, 301-530-7171. You can select a primary affiliation and as many secondary affiliations as fit your interests. For information on the Sections and their officers, check the APS home page (http://www.faseb.org/aps).

Introducing Celia Sladek

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Publishing in the Journals of the APS: Why are Authors Charged Fees?

Why does APS charge its authors fees in the form of page charges and manuscript submission fees, especially in light of the considerable APS endowment? Because publishers of scientific journals recover their costs in various ways, this editorial will explain which costs those fees are designed to defray.

Basically, the large journal program of the APS has long been break-even, sometimes making and sometimes losing money in any given year. Some journals are more financially successful than others, but all serve the purposes of disseminating science and giving physiologists an appropriate venue for publishing their research. In 1995 the APS Council mandated that the publications program be self-sustaining and strive to achieve 10% revenue over expenses to help defray the cost of other member benefits. Since that time, the 10% goal has been achieved only in the last two years, but we must be alert to the uncertainties of publication revenues in future years.

APS’s endowment has grown to its present size through wise investment of its funds, combined with stock market growth that probably will not continue at the same pace in future years. At a strategic planning retreat held in November 1999, new ways for APS members to benefit from this fund were discussed. The Council will vote on them and announce these innovations later this year. But even before the retreat was held, the endowment’s existence allowed the Society to provide the following journal benefits in 1999: subsidizing scientifically warranted color and giving it free to first or last authors who are APS members, allowing free online access to all journal content 12 months after publication, giving free online access to the journals with the purchase of a print subscription (many publishers charge a separate subscription price for online access in addition to print), and offering the incredibly low $49.50 price for online access to the entire collection of journals to APS members. All of these benefits have affected journal income. Furthermore, the number of institutional subscriptions—the most important source of journal income—has fallen with the inception of online publishing. Nevertheless, it is essential for the society’s publication program to remain fiscally sound.

It has been the philosophy of APS to keep subscription prices as low as possible to allow the broadest distribution among readers and not to burden libraries struggling to keep up with the price increases of some journals during these years of restricted budgets (even though APS journals are universally considered staples on the shelves of science and medical libraries). The data suggest that we are doing quite well in this regard. A recent study performed at the University of Wisconsin-Madison found that when journal subscription prices were examined in terms of cost to a subscriber per printed page and by impact factor, association (i.e., not-for-profit societies like the APS) publications were a much better value than those published by commercial publishers. Among the neuroscience journals, for instance, the range of subscription cost per impact factor was 0.14 to 61.32. The APS’s Journal of Neurophysiology had a cost/impact factor of 0.298, or excellent value for the cost of a subscription. The study can be found on the Web at http://www.library.wisc.edu/projects/glsdo/cost.htm.

Like many other association publishers, APS is able to keep subscription prices low by sharing some of the cost of publishing the journals with the authors who submit manuscripts. Some societies minimize page and other charges and underwrite the expenses of the journal program by requiring members to subscribe to their journal as a part of membership dues. Many commercial publishers do not charge authors for publication (i.e., page charges) but have much higher subscription prices and are expected to generate profits for their shareholders. For the APS journals, the cost of quality control and production—copyediting, proofreading, typesetting, layout, printing, binding, and mailing—averages more than $250 per printed page. We ask authors to contribute $60 a page to offset part of these costs, and in the last 2 years, have made this charge mandatory. These charges are comparable to those of competing journals (e.g., Endocrinology, $85/page; JBC, $65/page; JCI, $60/page, pages 1-8, $500/page for 9 or more; J Immunology, $60/page, pages 1-8, $120/page, pages 9-12; $180/page, more than 12 pages; J Exp Med, $55/page; the journals of the American Heart Association, $50/page; J Gen Physiol, $40/page). It should be noted that this $250 per page cost does not include the considerable costs of putting the journals online, which is another expense undertaken by APS to disseminate the science as widely as possible.

Recently, we have instituted a $50 manuscript submission fee to help cover the cost of peer review. Again, other journals, such as J Clin Invest, J Exp Med, and J Pharmacol Exp Therapeutics, have manuscript handling fees. The rationale for instituting the manuscript submission fee was to effect a partial recovery of the costs of peer review of manuscripts, including rejected manuscripts (approximately 3,000 rejected manuscripts were processed in 1999). Despite the voluntary contribution of labor by reviewers and editors, the peer review costs for each manuscript is $275. This figure includes the cost of operating editorial offices, paying staff assistants, purchasing or renting copiers, fax machines, computers, and all of the concomitant telephone and
mail costs. All of this is necessary for peer review to be done well, so that no manuscript gets lost, authors’ work is kept confidential, and reminders are sent to the volunteers who do the reviewing because authors rightly expect a quick turn around time for their work. The manuscript submission fee provides a means by which the costs of review can be shared by all contributors that make use of the system.

The implementation of APS’s new web-based tracking system, APS Central (http://www.apscentral.org/), has been expensive, but was started in order to automate much of the process and to give editors, reviewers, and authors the opportunity to work from anywhere in the world with the most up-to-date tools. APS Central is being implemented for some journals now, but within 18 months it will be operational for all the APS journals. We anticipate some reduction in the cost associated with the peer review process with APS Central, particularly with mailing. However, even if the postage costs could be entirely eliminated, the costs for peer review processing of a single manuscript would still be $240. Thus we expect the primary advantage of APS Central will be expedited review and processing of manuscripts rather than significant cost savings.

We clearly depend on the contributions (both as submitters and reviewers) of physiologists throughout the world to maintain the high quality of the papers published in our journals, and we value the association of each author and reviewer with the journal and the society. We realize that it is in physiology’s best interest, and in the best interest of the society, both from a scientific and a business perspective, to have strong journals. Every effort is being made to keep publication costs as low as possible, consistent with maintaining the requisite quality. We are proud to say that we are doing our part to avoid the trend of rising subscription costs by minimizing our increases in subscription rates. The scientific community has put pressure on publishers to make science free to all—unfortunately, not even Harold Varmus’s E-Biomed proposal would have done that. In his proposal, it was intended for publishers to recover their costs by charging authors high submission fees and increased page charges in order to offer the content free to the scientific community and the public. It has been estimated that the costs to an author would be 2-3-fold higher than it is now for “free” publishing on E-Biomed, or PubMed Central, as it is now called.

All of this being said, however, it is disconcerting as an author to have to pay $500-750 to publish a paper in one of the APS journals. The Publications Committee and Council, scientists like you, recognize this because they have to pay the same bill you do. Many constructive suggestions to help defray some of the costs associated with publications have been proposed and are currently being considered. Additionally, a special task force is being assembled that will examine all aspects of our publications program, especially our pricing policy in light of the potential loss of income due to the impact of electronic posting of our journals. Rest assured that our guiding principle in the upcoming analysis will be to keep the cost to contributors and the consumer at a minimum, while at the same time enhancing the quality of the product. The APS publications program is a $12 million/year operation, and it has only been in the last two years that income has exceeded expenses. This situation can change instantaneously in this age of electronic, web-based publishing. Our goal is to have APS publications properly poised to flourish under the prevailing changing and quite unpredictable conditions.

Dale J. Benos
L. Gabriel Navar
Margaret Reich

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Chapter News

Inaugural Meeting of the Gulf Coast Physiological Society

The Gulf Coast Physiological Society held its inaugural meeting at the Health and Environmental Research Building at Tulane University School of Medicine on November 19 and 20. The meeting was co-sponsored by the Departments of Physiology at Tulane University School of Medicine and the Louisiana State University Health Science Center. This exciting event was attended by nearly 130 investigators and interested individuals from Tulane University, LSU New Orleans, LSU Shreveport, University of South Alabama, University of Mississippi Medical Center, Southern University of New Orleans, Xavier University, University of Louisiana at Monroe, Ochsner Medical Foundation, University of New Orleans, and Auburn University. The meeting began with introductory remarks from L. Gabriel Navar and John Spitzer. During these remarks, emphasis was placed on the primary focus of the society to foster greater interaction among the member institutions in the areas of teaching and research. Consistent with this teaching mission was the strong need to encourage and support the training of young graduate students toward careers in physiological investigation and to reach out to undergraduate students to expose them to the career opportunities that physiology can offer. These topics were followed by discussion and ratification of the bylaws and solicitation of nominations for society officers.

With the essential introductory and business matters completed, the group settled in to hear the keynote address delivered by Salvador Moncada, Director of the Wolfson Institute for Biomedical Research at the University College of London. Moncada graciously agreed to speak to the group and was the guest of The Oxygen Society. The title of the featured presentation was “Nitric oxide and the physiology and pathophysiology of cell respiration.” His talk was enthusiastically received by a capacity crowd and was followed by many questions and points of discussion.

The afternoon was rounded out by a poster discussion session featuring the work of 45 presenters representing students and investigators from the attending institutions. Research presentations encompassed all organ systems, and experimental investigations ranged from whole animal studies to cell and molecular physiology. Attendance and discussions between meeting attendees and poster presenters were excellent and reinforced the positive aspects of fostering such an interaction among members of regional research and undergraduate institutions.

One of the highlights of the meeting were the short presentations given by representatives of the charter institutions. Individual presentations were presented by John Spitzer from the LSU Health Sciences Center, New Orleans; Aubrey Taylor, from the University of South Alabama; Joey Granger from the University of Mississippi Medical Center, Neil Granger from the LSU Medical School in Shreveport; L. Gabriel Navar from Tulane University School of Medicine, and Timothy Hammond from the Astro Biology Center at Tulane University School of Medicine. These presentations provided an overview of the research interests of (continued on page 82)
Chapter News

(continued from page 81)

the faculty at the respective institutions and to expose regional investigators to the research opportunities that are available at these institutions.

The opening day of the meeting concluded with a reception and dinner at The City Energy Club of New Orleans. This reception was attended by the meeting registrants and was kindly sponsored by the Astra Zeneca Pharmaceutical Company. We gratefully acknowledge their generous support. Carlos Romero of the Department of Physiology at the Mayo Medical School closed the evening with a dinner presentation entitled, “The role of angiotensin II and oxidative stress in renovascular hypertension.” In his talk Romero highlighted what is currently known about the multifaceted roles that oxidative stress and oxygen radicals play in influencing the cardiovascular and renal function during hypertension.

The Saturday schedule began with a short meeting to attend to the necessary business of the society. The primary item on the agenda was the election of officers. Joey Granger, Professor in the Department of Physiology and Biophysics at the University of Mississippi Medical Center was elected to a two-year term as president of the GCPS. Edward Inscho, Associate Professor in the Department of Physiology at Tulane University School of Medicine was elected as Secretary/Treasurer. Neil Granger from LSU Shreveport, Kathleen McDonough from LSU New Orleans, Joey Benoit from the University of South Alabama, and Jane Reckelhoff from the University of Mississippi Medical Center will serve as councillors. L. Gabriel Navar and John D. Imig from Tulane University School of Medicine, Ron Korthuis from LSU Shreveport, Mike Levitzky from LSU New Orleans, Jim Downey from the University of South Alabama, and Robert Hester from the University of Mississippi Medical Center make up the nominating committee. Following election of officers, Martin Frank addressed the meeting attendee’s to provide a report on the activities of the American Physiological Society and the importance of developing strong, active regional physiological societies. In addition, he discussed new initiatives being undertaken by the American Physiological Society to provide a mechanism to support meaningful research experiences for interested undergraduate students. Following the business meeting, our APS-sponsored speaker, Brian Duling, of the Department of Molecular Physiology and Biological Physiology, University of Virginia, Charlottesville, presented an exciting talk entitled “Gap junctions in the arteriolar wall integrate smooth muscle and endothelial cell function.” He gave a unique glimpse into the mechanisms of endothelium-vascular smooth muscle interactions at the microvascular level.

This initial meeting of the GCPS was a tremendous success and bodes well for continued growth in the coming years. The site, meeting dates and program for the second annual meeting of the Gulf Coast Physiological Society remain to be determined. In the interim days, I encourage all members of the Gulf Coast region to contact any of the society officials to register your ideas for society programming, goals or methods to stimulate participation of all graduate and undergraduate institutions. Your contributions will be greatly appreciated.

Edward W. Inscho
Tulane University School of Medicine

Ohio Physiological Society Holds Annual Meeting

The Ohio Physiological Society held its annual meeting at Miami University on November 12, 1999. Forty-seven individuals pre-registered for this meeting, and there were over 50 physiologists in attendance. Our keynote speaker and APS lecturer was Margarita Dubocovich from Northwestern University. Her presentation was “Expression, signaling and function of neuronal melatonin receptors.” Other speakers were: Carole M. Liedtke and Amy L. Wilson, Case Western Reserve University; Nelson D. Horsemann, University of Cincinnati; Lakshmi Pulakat, Bowling Green State University; Javier Stern and Norma Adragna, Wright State University; and Jack Rall, Ohio State University. In addition, there were 20 poster presentations by graduate students and faculty from Bowling Green State University; Case Western Reserve University; Medical College of Ohio, Toledo; Miami University; Northeastern Ohio Universities College of Medicine; and Wright State University. The meeting was organized by Phyllis Callahan, President, along with Peter K. Lauf, Treasurer, and Norma Adragna, Past-President. Dee Childhood (Wright State University) and Joni Robinson (Miami University) provided secretarial and administrative assistance. During the business meeting we discussed next year’s meeting, which will be held at Ohio State University and will be coordinated by Jack Rall.

The meeting at Miami University was supported by registration fees and membership dues, as well as financial support from the College of Arts and Sciences, The Office for the Advancement of Scholarship and Teaching, The Graduate School and the Department of Zoology at Miami University, the American Physiological Society, and Fisher Scientific. In part due to this support, we were able to offer free registration to 27 graduate students.

Phyllis Callahan
Miami University
President Clinton recommended funding increases in key life sciences programs as part of his fiscal year (FY) 2001 budget proposal that was transmitted to Congress February 7. In his State of the Union speech, Clinton explained the rationale behind his emphasis on science and technology. “In the new century, innovations in science and technology will be the key not only to the health of the environment but to the miraculous improvements in the quality of our lives and advances in the economy,” he said. Clinton also mentioned several specific areas of biomedical research, including the pending completion of the human genome project, the identification of genes responsible for Parkinson’s disease, diabetes, and certain cancers, and promising efforts to develop targeted gene therapies for breast cancer and Alzheimer’s disease.

NIH: The budget request is $18.813 billion, an increase of $1 billion or 5.6% over FY 2000. The NIH request would fund a total of 31,287 Research Project Grants, but the number of new grants would be only 7,641, down 1,309 from the 8,950 RPGS that are expected to be funded in FY 2000. The explanation for this decrease is the large commitment base of continuing awards along with growth in grant sizes. The administration also proposes to keep cost increases for continuations at 2% over FY 2000 funding levels. The FASEB Consensus Conference recommended a $2.7 billion or 15% increase to keep NIH on the path to a 5-year doubling of its budget.

NSF: The budget request is $4.572 billion, a 17% increase over the FY 2000 level, including funds designated for specific areas. The total number of NSF grants will increase from 19,910 in FY 2000 to 21,200 in FY 2001, with an increase in new grants from 8,470 to 9,600. FASEB recommended a 16% increase in unrestricted research funds.

VA Medical Research: The budget request is $321 in FY 2001 for clinical, epidemiological, and behavioral studies. FASEB recommended $370 million.

NASA Life Sciences: The budget request is for a $21.4 million increase in three key programs in the Life Sciences Division. Increase information was not available for several other small programs involving life sciences research. FASEB recommended a $50 million increase in the three Life Sciences Division programs as well as the Exobiology program, the Astrobiology Institute, and National Space Biomedical Research Institute.

APHIS Animal Care: The budget request is $16 million in FY 2001 for Animal Welfare Act activities within USDA’s Animal and Plant Health Inspection Service (APHIS). This is a $5 million increase over the FY 2000 funding level.

Wise Spending a Congressional Concern

In the wake of two years of 15% increases in NIH funding, Members of Congress are asking whether NIH is putting the money to good use.

House Labor-HHS-Education Appropriations Subcommittee Chairman John Edward Porter (R-IL), one of NIH’s staunchest champions, put the question directly to Acting NIH Director Ruth Kirschstein. At a February 15 committee hearing, Porter asked Kirschstein whether NIH was supporting good science. Porter indicated that he was still hopeful to be able to keep NIH on a five-year doubling path, but he was clearly looking for justification.

Other subcommittee members raised similar concerns. Ranking Democrat David Obey (D-WI) asked how NIH would propose to spend not only the $1 billion increase proposed by President Clinton for FY 2001, but also possible additional increments of $1 billion. Rep. Steny Hoyer (D-MD) went further to ask Kirschstein to justify additional increases by increments of $500 million, which she promised to do. Rep. Jay Dickey (R-AR) expressed concern about NIH’s ability to continue to fund good science and manage an expanded grants portfolio, and Kirschstein assured him that NIH would not fund grants unless peer reviewers consider it worthwhile. Kirschstein said that NIH had an orderly plan to deal with the fact that these funds would not be available until the closing days of the fiscal year, and said that the number of awards would not be affected. Rep. Obey also noted the smaller number of new and competing grants in FY 2001. The president’s budget calls for 8,165 such grants next year, as compared with 9,171 in FY 2000. Kirschstein noted that NIH’s total grant portfolio would reach an historic high. In addition, in response to complaints over the past few years about reductions in grant size, this year NIH is increasing the size of awards to provide grantees with budgets closer to what was recommended by peer reviewers.
The APS offered its support for NIH’s “Guidelines for Research Involving Human Pluripotent Stem Cells.” In a February 17 letter to NIH’s Office of Science Policy, APS President Walter Boron described the research as “at once scientifically promising because of its potential and ethically challenging because it involves human embryos.”

The draft guidelines were published in December with a comment period that originally was supposed to end on January 31, a deadline that was later extended until February 22. The draft guidelines are based upon a legal opinion issued by the Department of Health and Human Services. The opinion determined that stem cells are not covered by a ban on human embryo research because the cells themselves are not embryos.

The proposed guidelines would allow NIH to support experiments with stem cells but would not permit the use of federal funds to derive such cells from early human embryos. Rather, NIH-funded researchers could obtain stem cells derived by private labs, but the researchers would be required to certify that the stem cells were derived from embryos originally created for fertility treatment and that the donors gave informed consent. The APS supported this approach. “While any use of embryonic cells has the potential to raise ethical concerns,” Boron wrote, “the proposed approach does seem to provide an ethically acceptable course that parallels widely accepted policies governing the donation of organs and tissues.”

The guidelines would also permit the use of stem cells from aborted fetuses. This has been subject to less controversy because fetal tissue research is already permitted under other federal research funding guidelines.

The APS letter concurred with the aspects of the guidelines that would provide safeguards in terms of how stem cells may be collected, such as requiring informed consent from donors and making certain that decisions about fertility treatment are made separately from the decision to donate unneeded embryos for stem cell research. However, the APS urged changes in a requirement that researchers document that stem cells they acquire were derived in accordance with the guidelines. “Since researchers are required to remain at arm’s length from the acquisition of stem cells, this requirement may be difficult or impossible to fulfill,” Boron wrote. He suggested instead that NIH might recognize an independent certification that derivation standards had been met, and that researchers be permitted to rely upon a previous certification that a cell line had met the derivation standards.

NIH has published its most recent Reinvention Status Report, the seventh of its kind, highlighting electronic research administration (ERA) activities at the facility. The latest edition highlights modular research grant applications and awards, streamlined council reviews, a description of the current projects in the ERA, including a simplification of summary statements, updates the progress on continuing projects and concludes with milestone achievements made in the program.

The modular research grant application and awards were implemented in June, 1999, and were used by over 90% of applicants for both the first and second receipt dates. Investigators are instructed to prepare the budget request in modules of $25,000, and up to a maximum direct cost level of $250,000. This type of application is meant to free up NIH administrative staff by eliminating much of the budget detail required previously.

The streamlined council reviews, which also debuted last year, allows the second level of peer review to be expedited for the applications deemed most meritorious by the initial review group. The expedited review occurs electronically prior to the actual council meeting, which allows for awards to be made sooner.

Grants applicants can also now receive essentially verbatim critiques from reviewers, instead of a prepared document summarizing all of the reviewers’ comments. The simplification of summary statements also improves NIH staff efficiency and the amount of information applicants receive about their applications.

The report lists among its milestone achievements the implementation of a simplified noncompeting award process (SNAP), a streamlined review, and the simplification of summary statements.

Two New Websites Offer Animal Research Information

The Foundation for Biomedical Research has completed an update design of its website at http://www.fbrsearch.org. The pages provide on-line versions of valuable information resources that have been produced by the Foundation, which works closely with the National Association for Biomedical Research (NABR). Featured items include a news archive with information about crimes committed in the name of “animal rights”; answers to common questions about animal research; animal research facts on various topics and controversies, as well as information about the use of certain species as models for particular diseases; information on ordering FBR publications, posters, and other materials; plus an extensive collection of links to other web sites with information about the benefits of animal research, animal care and use, science education resources, and health information on the net. Special pages for children are under construction.

The New Jersey Association for Biomedical Research has also recently updated its website at http://www.njabr.org. This site offers good educational materials, including profiles of prominent New Jersey scientists in a “Science Superstars” section and a “Thank You, Research” lesson plan intended to introduce students to the “extensive medical and scientific research taking place in New Jersey.” In conjunction with a program called Animals, Science, and Know-How (ASK) that provides assistance to New Jersey teachers wishing to keep animals in their classrooms, the website provides useful information about how teachers can select and care for such animals.

NIH Launches Clinical Trials Database on the Web

The National Institutes of Health has launched the first phase of its congressionally mandated clinical research trial database. The service, http://clinicaltrials.gov, is an Internet-based service that currently contains information on more than 4,000 federal and private trials at more than 47,000 locations.

NIH funds most of the 4,000 clinical trials now in the database. The next phase of the project will be the inclusion of non-NIH sponsored trials from other federal agencies and private industry into the database. The National Library of Medicine (NLM) spearheaded the creation of the site. In addition to the trials database, extensive links are available to the NLM’s consumer health information service, MEDLINEplus.

ClinicalTrials.gov grew out of the Food and Drug Administration Modernization Act of 1997 (Public Law 105-115). NIH is stressing to the public that the site is completely confidential and no registration or personal identification of any kind is required to access information on specific trials.

Gift Planning Opportunities

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

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

- Immediate Gifts: Cash, gifts of appreciated securities, gifts of closely held stock, gifts of tangible personal property, retirement assets, charitable lead trusts and gifts of real estate.
- Life Income Gifts: Gift annuities, deferred payment gift annuities, charitable remainder trusts, charitable remainder unitrusts, and charitable annuity trusts.
- Gifts of Insurance: Ownership of life insurance policies can be donated, or the APS can become the beneficiary of policies owned by others.
- Designated Gifts: Gifts given to honor or memorialize an individual or an organization and can include scholarships, programs, etc., which are specified for support and named for individuals.
- Gifts by Will: Bequests of a percentage of estate, stated dollar amount or specific property or assets.

For more information on gift giving to the APS, please contact Martin Frank, Executive Director (Tel. 301-530-7118, Email: mfrank@aps.faseb.org), or Robert Price, Director of Finance (Tel. 301-530-7160, Email: rprice@aps.faseb.org).

The Committee will screen the applications, and the awards will be made by The American Physiological Society (APS), which is raising funds for the travel. The travel awards will be approximately $1,000 to help cover the majority of the airfare to New Zealand.

The awards are intended for individuals resident to the United States who have no other source of funds to attend the Congress. Federal employees are eligible. It is anticipated that more applications will be received than can be funded. To achieve as high a rank as possible, the following factors should be considered:

- complete all questions on the application
- provide copies of letters of invitation if you have been invited to the Congress to make a presentation
- provide an indication of participation in the Congress, including presentations and attendance for most or all sessions
- have travel plans that include other professional visits or work

The deadline for submissions of applications for travel awards is December 1, 2000. The application is on the following two pages. All applicants must submit six copies of the application to USNC/IUPS, National Academy of Sciences, Attn: Paul Turner, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.
APPLICATION FORM

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_______________________________________________________________

4. Phone number:________________________________________ Fax number: ______________________________

5. E-mail address: ________________________________________________

6. Country of citizenship:_________________________________________ Visa status if not U.S. citizen: ____________________

7. Underrepresented Minority Applicants: Please circle ethnic group to which you belong:
   African American  Hispanic  Native American  Pacific Islander

8a. Gender: Male______ Female______

8b. Do you need special assistance or accommodations? ________________________________

9. Attending entire Congress? Yes_____ No _____ If not, which days will you attend? ________________________________

   Will you present an invited paper or poster at the Congress? Yes_____ No _____

   If so, please indicate the sessions you will address. If invited, attach letter of invitation.

   Invited to give public lecture (give title): ________________________________

   Invited to Congress synthesis (give title; indicate chairman): ________________________________

10. Do you intend to submit a poster? (If yes, please give title): ________________________________

11. Please describe your area of specialty (e.g. cell physiology, neurophysiology, etc.):

12. Member of: APS____ SGP____ SICB ____ Soc. Neurosci. ____ BMES ____ Microcirc. Soc. ____ Other ______

13. Are you employed by the federal government more than half-time? Yes_____ No_____

14. Travel:
   a. City of departure________________________________________ b. Support requested____________________________

   c. Amount of other support available (excluding personal) ________________________________

15. Recent publications (not more than 5 titles, giving full refs). If listing abstracts or manuscripts in press, please indicate.

Deadline for postmark of applications: December 1, 2000
Submit six (6) copies to USNC/IUPS, National Academy of Sciences,
16. Anticipated abstract (Not more than 250 words on paper or poster you plan to present at the Congress, including names of author and coauthors and indicate presenter. If none, abstract of current work.)

17. Give a brief resume of the scientific purposes and goals of your trip in addition to attending the Congress, including other meetings: satellite symposia, laboratories you plan to visit, work on collaborations, etc.
Purpose of Meeting:
This meeting will focus on baroreceptor and cardiopulmonary reflexes. A wide range of scientific questions will be covered ranging from studies of cellular and molecular mechanisms of mechanoelectrical transduction to studies of baroreflex control in humans. Multidisciplinary approaches will be emphasized ranging from molecular studies to systems physiology. Major investigators active in this area of research will participate in this conference with emphasis on young investigators and students. A substantial international attendance is anticipated.

Sessions & Speakers:

Cardiovascular Sensory Afferents--Physiology
Francois Abboud, John Longhurst, Kenji Sunagawa, Helio Salgado, Harold Schultz

Molecular Mechanisms of Sensory Transduction
Owen Hamill, Monica Driscoll, Heather Drummond, Christopher Benson

Molecular/Cellular Mechanisms Modulating Afferent Activity
Holly Middlekauff, Daniel Weinreich, Ellis Cooper, Meredith Hay

NTS--Afferent Processing and Integration
Michael Andresen, Steven Mifflin, Robert Rogers, K. Michael Spyer

NTS--Neurotransmitters and Modulators
Jeanne Seagard, William Talman, Benedict Machado, Lisete Michelini

Central Baroreflex Mechanisms
Sue Aicher, Alan Sved, Patrice Guayenet, David Mendelowitz, Donald Reis

Differential Regulation of Sympathetic Nerve Activity
Shaun Morrison, Robert Felder, Cheryl Heesch

Transgenic and Knock-out Animal Models and Gene Transfer
Gerald DiBona, Julian Paton, Mark Chapleau, Akira Takeshita

Baroreflex Control During Exercise
Allyn Mark, Vernon Bishop, Jeffrey Potts, Donal O’Leary, Eduardo Kreiger

Rhythmic Oscillations in Cardiovascular Control
Susan Barman, Phyllis Gootman, Alberto Malliani, Nicola Montano, Pontus Persson

Integrative Regulation of Arterial Pressure and Circulation
Virginia Brooks, Geoffrey Head, John Osborn

Integrative Regulation of Circulation in Humans
Gianfranco Parati, Virend Somers, Myocardial Ischemia and Heart Failure
Mark Dunlap, John Floras, Steven Hull, Marc Thames, Irving Zucker

Orthostatic Intolerance
A. Kim Johnson, David Robertson, Ronald Shondorf, Dwain Eckberg, Eileen Hasser
Purpose of Meeting:
This meeting will provide a forum for research presentation and discussion through which there will be a critical mass for poster presentations of primary research. The symposia and other invited sessions have been constructed so as to provide younger investigators an opportunity to present their research. Broad interdisciplinary areas of interest such as gender, aging and obesity will be included along with updates in the now “standard” areas of addressing the molecular basis of adaptation to exercise in the muscles and cardiovascular system. Student awards will be presented. **Substantial time will be devoted to poster presentations.**

Sessions & Speakers:
- **Exercise-Induced Cardioprotection: Cellular Aspects**
  - Douglas Bowles (Chair)
  - Donna Korzick (Chair)
  - Colin Bloor
  - Marvin Boluyt
  - Edward Lokatta
- **Exercise and Aging: Challenge, Resiliency and Function**
  - Carl Gisolfi (Chair)
  - Loretta DiPietro
  - Karl Insogna
  - Wendy Kohrt
  - Kevin Kregel
  - Maria Singh
- **How Does Skeletal Muscle Adapt to Exercise?**
  - Brenda Russell (Chair)
  - Karyn Esser
  - Marc Hamilton
  - Charlotte Peterson
  - Steven Swoap
- **The Role of Physical Activity in the Prevention of Obesity and Management of Body Weight**
  - Claude Bouchard (Chair)
  - Michael Goran
  - Tuomo Rankinen
  - Eric Ravussin
  - Dale Schoeller
  - David York
- **Gender-Dependent Responses to Exercise**
  - George Brooks (Chair)
  - Stephen Davis
  - Anne Friedlander
  - Susan Hopkins
  - M. Harold Laughlin
  - Anne Loucks
  - Robert Marcus
- **Impact of Transgenic Manipulations on Integrated Exercise Performance**
  - H. Lee Sweeney (Chair)
  - Elizabeth Barton-Davis
  - Evangelia Kranias
  - Leslie Leinwand
  - Jeffery Robbins
  - Brian Roman

Organizer:
Peter Wagner

Steering Committee:
Kenneth Baldwin
Albert Bennett
George Brooks
Carl Gisolfi
M. Harold Laughlin
Ronald Meyer
Brenda Russell
David Wasserman

PLEASE SEND ME FURTHER INFORMATION ABOUT THIS APS CONFERENCE:
The Integrative Biology of Exercise - September 21-23, 2000 - Portland, Maine

Name________________________________________
Address______________________________________________________________________________________
City_________________________________________State/Province_________________________Zip/Postal Code______________________________
Phone_______________________________________________________Fax____________________________________________________________
E-mail__________________________________________________________
Welcome to Stockholm!
A joint meeting of the Scandinavian Physiological Society and the American Physiological Society will be held in Stockholm. The meeting is intended to be informal and lively with invited lectures, 20 forefront symposia and poster presentations, all attempting to cover the “hottest” topics in Physiology. There will also be ample time for informal discussions and casual conversations. In addition to the scientific program, highlights of the Congress include a get together evening (August 16) at the Stockholm City Hall (the place where the Nobel Dinner is held) and a steamboat excursion with dinner in the Stockholm archipelago (August 18). We wish you a very pleasant stay!

For the organizers,
A. Erik G. Persson

**Program**

**Wednesday, August 16**

4:30 PM: Opening of the Congress
4:45-5:45 PM: **Invited lecture: G. Giebisch**
Renal potassium channels: function, regulation and structure

6:30 PM: Reception: Stockholm City Hall

**Thursday, August 17**

8:30-9:30 AM: **Invited lecture: J.G. Forte**
Gastric H,K-ATPase and acid resistant surface proteins

10:00 AM-12:00 PM:
Symposium I: Signalling from gut to integrate the digestive response
(Organizers: J. Williams, J. Holst)
Symposium II: Paracrine mediators and signalling in the TGF
(Organizers: N-H. Holstein-Rathlou, G. Navar)
Symposium III: Physiology and biophysics of the interstitium. Fluid mechanisms and solute transport
(Organizers: A. Taylor, R. Reed)

1:00-3:00 PM:
Symposium IV: Control of sodium balance
(Organizers: P. Bie, J. Granger)
Symposium V: Gene therapy
(Organizers: M. Raizada, C. Wahlestedt)

**Symposium VI: Molecular mechanisms in exercise physiology**
(Organizers: R.S. Williams, J. Henriksson)

3:30-6:00 PM:
Symposium VII: Gastrointestinal mucosal barrier
(Organizers: G. Flemstrom, K. Kaunitz)
Symposium VIII: Renin-angiotensin system
(Organizers: O. Skott, R. Carey)

**Friday, August 18**

8:30-9:30 AM: **Invited lecture: M. Mulvany**
Vascular control of blood pressure

10:00 AM-12:00 PM
Symposium IX: New concepts in pulmonary ventilation and perfusion distribution
(Organizers: R. Glenny, D. Linnarsson)
Symposium X: Neurohormonal regulation of arterial pressure and body fluid volume
(Organizers: A. Aperia, G. DiBona)
Symposium XI: Aquaporins
(Organizers: S. Nielsen, M. Knepper)

3:00-5:30 PM
Symposium XII: NO and hypertension
(Organizers: C. Wilcox, AEG. Persson)
Symposium XIII: Development of synaptic plasticity
(Operator: B. Gustafsson)
Symposium XIV: Microvascular responses to acute and chronic inflammation
(Operators: L. Holm, N. Granger)

**Saturday, August 19**

8:30-9:30 AM: **Invited lecture: P. Andersen**
Biology of memory systems

10:00 AM-12:00 PM
Symposium XV: Sensory motor integration in the control of movement B from ion channels to behaviour
(Operators: H. Hultborn, A. Schwartz)
Symposium XVI: Capillary permeability and mechanisms of glomerular ultrafiltration
(Operators: K. Tryggvason, B. Hudson)
Symposium XVII: Cell pH regulation
(Operators: W. Boron, M. Nikinmaa)
Conferences

3:00-5:30 PM
Symposium XVIII: Molecular mechanisms in exo- and endocytosis
(Organizers: L. Brodin, H. Bellen)
Symposium XIX: Matrix and receptors
(Organizers: P. Ekblom, P. Yurchenco)
Symposium XX: Future drug discovery
(Organizers: J. Tornell J.M Lundberg)

POSTER SESSIONS
Friday, August 18 and Saturday, August 19, 1:00-2:30 PM
Posters will be selected from the submitted abstracts and grouped together thematically.

SATELLITE SYMPOSIUM 1
Session 1: Technical aspects of models used in functional genomics
Session 2: Myocardial function
Session 3: Kidney function

Saturday, August 19, 2000
Session 1: Technical aspects of models used in functional genomics

SATELLITE SYMPOSIUM 2:
Physiological Mechanisms in Diabetes
A Satellite Symposium of the Joint American and Scandinavian Physiological Societies’ Meeting in August 2000
August 12-13, 2000
Reykjavik, Iceland
Organized by the Icelandic Physiological Society and the Icelandic Endocrine Club
Organizers: Rafn Benediktsson (rafnbe@shr.is), Thor Eysteinsson (thoreys@hi.is), Logi Jonsson (logi@hi.is)

PROGRAM
Session topics and speakers:
Vascular biology: Karl Tryggvason (SVE), Einar Stefansson (IS), John E. Tooke (UK), Billy G. Hudson (USA).
Genetics: Karl Tryggvason (SVE), Ake Lernmark (USA), Kari Stefansson (IS).
Pathophysiology: Peter C. Butler (USA), J.R. Seckl (UK), Ole Schmitz (DK), Richard Bergman (USA).

For further information, please contact Professor Peter Thorén (peter.thoren@fyfa.ki.se)

GENERAL INFORMATION
For all other information, such as more details of the above program, poster-instructions, location of events, and tourist information, kindly see the homepage of the Scandinavian Physiological Society (http://www.scandphys.org). There you will also find the forms for registration and hotel reservations, as well as for submitting abstracts. Information is also available at http://www.faseb.org/aps/sps-apsmeeting.html.

DEADLINES
Receipt of abstracts: May 3
Registration and room reservation: May 15
JOINT SPS/APS MEETING TRAVEL GRANT PROGRAM
Stockholm, Sweden
August 16-19, 2000

1. Name and Degree: ___________________________ Year of highest degree: __________
2. Position or employment title: ___________________________ Year of Birth: __________
3. Address: ___________________________________________

__________________________________________________________________________

4. Phone Number: ______________________ Fax Number: ______________________
5. Email Address: ___________________________________________

__________________________________________________________________________

7. Underrepresented Minority Applicants: Please circle ethnic group to which you belong:
   African American    Hispanic    Native American    Pacific Islander
8a. Gender: Male _________ Female ___________
8b. Do you need special assistance or accommodations? ___________
9. Attending entire Joint Meeting? Yes ______ No ______ If not, which days will you attend? ___________
   Will you present an invited paper or poster at the Meeting? Yes ______ No _______
   If so, please indicate the session(s) you will address. If invited, attach letter of invitation.

10. Do you intend to submit a poster? (If yes, please give title): ___________________________

11. Please describe your area of specialty (e.g. cell physiology, neurophysiology, etc.):

12. Travel:      a. City of departure _______________ b. Support requested _______________________
    c. Amount of other support available (excluding personal) _______________________
13. Recent publications (not more than 5 titles, giving full refs). If listing abstracts or manuscripts in press, please indicate.

Deadline for postmark of applications: May 3, 2000
Submit six (6) copies to Martin Frank, Ph.D., Executive Director, American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814. Fax: 301-571-8305.
14. Anticipated abstract (Not more than 250 words on paper or poster you plan to present at the Joint Meeting, including names of author and coauthors and indicate presenter. If none, abstract of current work.)

15. Give a brief resume of the scientific purposes and goals of your trip in addition to attending the Joint Meeting, including other meetings, satellite symposia, laboratories you plan to visit, work on collaborations, etc.
The APS Education Office recently introduced a new addition to the APS website, *The Teacher/Researcher Connection*. This quarterly online newsletter targets middle/high school science teachers from the APS *Frontiers in Physiology* and *Explorations in Biomedicine* summer research programs, the APS researchers who sponsored their work in the lab for a summer, members of APS Local Outreach Teams, and all APS members interested in K-12 outreach.

Newsletter topics cover many areas of interest to K-12 teachers and APS researchers who participate in K-12 outreach. The *Teaching Resources* section includes links to science websites, and information on publications, activities, and equipment for science teaching. *Recent News* highlights Summer Research Program information and updates on APS Education Office activities. *Meet a Colleague* presents articles on program participants and their involvement in interesting projects and research. Specific articles on each program are also included in the *Frontiers*, *Explorations*, and *Local Outreach Team* sections.

To view the newsletter online, go to [http://www.faseb.org/aps/educatn/connectionsweb/home.htm](http://www.faseb.org/aps/educatn/connectionsweb/home.htm). Please direct any suggestions or questions to the APS Education Office at (301) 530-7132 or educatio@aps.faseb.org.

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**Program Announcement**

**Porter Physiology Fellowships for Minorities**

**Closing Date for New Applications:** June 15, 2000  
**Announcement of Awards:** August 20, 2000

**Annual Stipend:** $15,000  
**Duration of Fellowship:** 1 year with possibility of 2nd year of support

The Porter Physiology Fellowships for Minorities are open to underrepresented ethnic minority applicants (African Americans, Hispanics, Native Americans, Native Alaskans, or Pacific Islanders) who are citizens or permanent residents of the United States or its territories. Applicants must have been accepted into or currently be enrolled in a graduate program pursuing an advanced degree in the physiological sciences.

**FOR AN APPLICATION CONTACT:**

The American Physiological Society  
Education Office  
9650 Rockville Pike  
Bethesda, MD 20814-3991  
(301) 530-7132  
fax (301) 571-8305  
educatio@aps.faseb.org  

**Sponsored by:** APS Porter Physiology Development Committee
APS Participates in Planning for Undergraduate Digital Library

In March 2000, the American Association for the Advancement of Science (AAAS), in conjunction with the APS, the American Society for Microbiology, the Ecological Society, the National Association of Biology Teachers, and other professional societies, developed and coordinated a meeting to plan an electronic library of learning resources for undergraduate biology education. Support for the planning process was provided by the NSF’s National Science, Mathematics, Engineering, and Technology Education Digital Library (NSDL) program.

The purpose of the meeting was to develop an initial plan of action for creating and implementing the electronic library. Participants first heard from experts in the development of digital libraries on lessons learned in the development and implementation of these important, but complex resource databases. Next, perspectives on the importance of an electronic library for undergraduate biology education were provided by NSF program officers, undergraduate educators, and representatives from scientific and teaching societies.

During the perspectives session, APS Education Officer Marsha Lakes Matyas provided an overview of the new APS Archives, its goals, history, and future directions. In response, APS member David Bruce, Wheaton College, offered perspectives from undergraduate educators, including the results of an informal email survey of APS Teaching Section members and HAPS members.

For the remainder of the three-day meeting, participants met in working groups to develop initial plans of action in five areas: organization and management; collection development and acquisition; attracting and developing library users; technical aspects; and research and evaluation. APS member and AAAS Board of Directors member, Nina B. Schwartz, Northwestern University, participated as a member of the organization and management team. Marsha Matyas led the research and evaluation team and presented the team’s plan for process and summative evaluation of the library project.

For more information on the digital library project, including the presentations made by Matyas and Bruce and future updates on the digital library project, visit the APS Archives site at http://www.faseb.org/aps/educatn/Archive/Archive.html.
Medical Physiology Curriculum Objectives - UPDATE

The Medical Physiology Curriculum Objectives Project, headed by Robert G. Carroll, Department of Physiology, East Carolina University School of Medicine, L. Gabriel Navar, Department of Physiology, Tulane University School of Medicine, and Mordecai P. Blaustein, University of Maryland School of Medicine, presents core competency physiology criteria considered essential for all medical and health professional students pursuing further studies in pharmacology, pathology, pathophysiology, and medicine.

The purpose of developing these criteria is to provide guidelines for the breadth and depth of knowledge in the physiological principles and concepts that are considered minimal and essential for further progress in understanding mechanisms of disease and body defenses. Regardless of the specific didactic or educational approach used by any given institution, that institution must develop mechanisms to assure that the students are being inculcated with these basic principles and concepts at an appropriate depth of understanding. The development of these core learning objectives will allow all programs to determine if their students are achieving at least this basic level of understanding.

A joint project by The American Physiological Society and the Association of Chairs of Departments of Physiology, the project began in 1998. Section co-coordinators and participants were recruited, section objectives compiled drafted, and edited. The draft objectives were posted on the APS website, distributed to physiology department chairs and course directors, and presented to members at Experimental Biology ’99. Final revisions will be distributed in April 2000. A draft is available on the APS website at: http://www.faseb.org/aps/educatn/MedPhysObj/medcor.htm.

Women Life Scientists: Past, Present, and Future

Increase students’ exposure both to female science role models and to hands-on, inquiry approach, and problem-solving science activities, as recommended by the National Science Education Standards. Modules drop easily into middle and high school life sciences curricula — not an “add-on.”

Each module contains a biography of a female science role model and related life sciences activities with a multidisciplinary focus.

Activity format includes suggestions for teachers, assessment ideas, and handouts for students.

The Science of Life

Here’s a fun and interesting way to introduce students to physiology!

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

Research shows that students will read comic books over and over again, making the comic book a great science resource!
In 1999, the APS established a new program to fund four Undergraduate Summer Research Fellowships during the summer of 2000. Because of the number of outstanding applicants, APS has increased the number of awardees from four to 12 for the 2000 program. Selection of awardees was based upon academic merit and availability of appropriate faculty mentors. Special considerations were given to applicants whose socioeconomic background, access to educational opportunities, and other life experiences indicated that they would especially benefit from this program. All applications were reviewed, evaluated, and ranked by the APS Career Opportunities in Physiology Committee.

The award provides a $2,000 stipend to the student (10 weeks support) and an unrestricted $500 grant to the faculty sponsor/advisor. Student awardees are eligible for a travel grant ($800 maximum) to allow them to present their research data at EB 2001. More information about the fellowship is available at: http://www.faseb.org/aps/educatn/Careers/UndSumFell.html.

Student/Research Hosts Awards:

Jonathan Hernandez, Host: Susan C. Frost, University of Florida
Nicole Silva, Host: Joseph R. Haywood, University of Texas Health Science Center
Rebecca Stein, Host: Dorothy Hanck, University of Chicago
Katharine R. Jenkins, Host: David Robertshaw, Cornell University
Cara Weisbrod, Host: Michael J. Joyner, Mayo Clinic
Lindsey Glickfield, Host: Richard W. Tsien, Stanford Medical School
Jarrad Scarlett, Host: Robert Steiner, University of Washington
Kadon Hintz, Host: Amy J. Davidoff, University of New England
William Fannon, Host: Ronald N. Cortright, East Carolina University
Jane Healy, Host: Lawrence Espey, Trinity University
Christopher Ortiz, Host: V. Reggie Edgerton, UCLA
Christin Spahn, Host: Daniel Ely, University of Akron

Online Teaching Resources for Physiology Educators

- Case Histories
- Lecture Slides
- Links to Course Syllabi
- Links to Animations and other Resources
- Meetings and Reports on the Teaching of Physiology
### Positions Available

**Graduate Programs in Neuroscience:** The Department of Physiology and Neuroscience at the Medical University of South Carolina in Charleston announces graduate programs with a focus on neuroscience leading to the Master of Science and Doctor of Philosophy degrees. Faculty members have research expertise in the cellular and molecular biology of substance abuse, neurodegenerative and psychiatric disorders, as well as expertise in animal models pertaining to these disorders. For correspondence or more information, please contact Dr. George E. Tempel, Graduate Program Director, Medical University of South Carolina, 167 Ashley Avenue, Suite 607, Charleston, SC 29425. Tel: 843-792-2977; fax: 843-792-4423; email: tempelge@musc.edu.

**Postdoctoral Position:** A postdoctoral position in the Department of Physiology, The University of Tennessee, Memphis, is immediately available to study local and global calcium signaling in arterial smooth muscle: modulation of sarcolemmal ion channels and regulation of cellular contractility (for review see Jaggar et al., *Am. J. Physiol.* 278: C235-C256, 2000). Qualifications: PhD in physiology or related field. Experience with patch-clamp, confocal microscopy, or calcium fluorescence is beneficial. Please send curriculum vitae and three letters of reference to: Jonathan H. Jaggar, PhD, Department of Physiology, University of Tennessee, Memphis, 894 Union Avenue, Suite 426, Memphis, TN 38163. Fax: 901-448-7126; email: jjaggar@physiol.utmem.edu. The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA employer.

**Postdoctoral Fellows/Research Associates:** The Department of Physiology and Biophysics and the Center for Excellence in Cardiovascular-Renal Research of The University of Mississippi Medical Center invite applications for postdoctoral fellows/research associates to train in cardiovascular and renal research. Candidates must have a PhD or MD degree with an interest in cellular/molecular research, as well as integrative physiology. Postdoctoral fellows will have the opportunity to learn a broad range of methods and research strategies, including genetics, molecular, biochemical, cellular, whole organ, and integrative biological approaches. Some of the current research areas in the Center include vascular biology, hypertension, diabetes and obesity, heart failure, kidney disease, atherosclerosis, and pre-eclampsia. Applicants should send a curriculum vitae, a statement of research interests and career goals, a graduate transcript and the names of three references to: Dr. John E. Hall, Department of Physiology and Biophysics, University of Mississippi Medical Center, 2500 North State Street, Jackson, MS 39216-4505. EOE

**Senior Scientist:** Allergan, Inc., an international specialty health care company, has an immediate opening for a Senior Scientist in its biological research division, located in Irvine, CA. Responsibilities will be to conceive, design, propose, conduct, and possibly supervise theoretical and experimental studies aimed at identifying drug targets and mechanisms of drug action in order to drive the nomination of new drugs for human testing in the area of photo dynamic therapy. This research position requires a strong scientific background with demonstrated performance in initiating and solving complex research questions. In addition, a pragmatic and strong technical ability and expertise in scientific disciplines are important for this position. Education and experience required include a PhD level education with at least two years specific academic or industrial experience. Desired fields of expertise include photo dynamic therapy research, ophthalmology research, biochemistry, and pharmacology. Allergan offers a competitive compensation package based on experience, as well as excellent benefits. For more information, please see our website at allergan.com. If interested in applying, please email your resume to recruiter@allergan.com, or you may mail it to Recruiter - T1-1B/CM, 2525 Dupont Drive, Irvine, CA 92713. [EOE]

**Assistant Professorships:** Applications are invited for three tenure-track positions as Assistant Professor of Molecular Physiology & Biophysics. Applications for senior faculty positions from individuals with outstanding credentials also will be considered. The Department has an active PhD program and a strong emphasis on basic research as detailed on our website (http://www.bcm.tmc.edu/physio/). Research is facilitated by excellent core facilities and a longstanding tradition of collaborative interaction. We are particularly interested in recruiting individuals who work in the fields of physiological genomics, molecular motors, signal transduction, and biophysical approaches to ion transport and homeostasis. However, other areas of physiologic expertise also will be considered. Successful candidates must hold a PhD, MD, or equivalent degree, must have a clear record of scientific excellence, and must hold or be competitive for external research funding. Individuals will be expected to establish an independent research program and to participate in teaching of graduate and medical students. Salaries and start-up packages are highly competitive. Send curriculum vitae, a description of research plans, and three letters of reference to: Ms. Lynda Attaway, Dept. of Molecular Physiology & Biophysics, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030. Baylor College of Medicine is an Equal Opportunity Employer. Underrepresented minorities and women are encouraged to apply.
Visiting Instructor in Human Physiology: The University of Oregon invites applications for one visiting instructor in Human Physiology. The position requires experience teaching undergraduate and graduate students in human physiology and related areas at the university level, advising undergraduate/graduate students, and participating in departmental committees. Salary is $26,000 for a 0.75 FTE. Send letter of application, curriculum vitae, samples of scholarly work if available, and 3 letters of reference to Human Physiology Position Search, 1240 University of Oregon, Eugene, OR 97403-1240. Tel: 541-346-4144; email: mwool@oregon.uoregon.edu. Deadline: April 15, 2000, or until filled.

Scientist: The Department of Physiology & Biophysics at the UMDNJ-Robert Wood Johnson Medical School is seeking a scientist with training in cardiovascular pathophysiology. The candidate is expected to participate in an ongoing NIH-funded research project in the field of local myocardial ischemia and reperfusion. Duties include surgery, physiological measurements, data analysis, and preparation of manuscripts for publication. This position is available immediately. Please contact: Joseph Kedem, PhD, Professor, Dept. of Physiology & Biophysics, UMDNJ; Robert Wood Johnson Medical School, 675 Hoes Lane, Piscataway, NJ 08854. Phone: 732-235-8923, Fax: 732-235-8346; email: Kedem@umdnj.edu.

Life Scientist: Entelos has an opening for life scientists for Systems Biologist positions on our Diabetes PhysioLab Development Staff. The systems biologist works with biologic modelers and systems biologists to develop and assess our mathematical models. The ideal candidate would have a PhD in physiology, metabolism, diabetes, nutrition, or endocrinology; two to three years of experience in a pharmaceutical, biopharmaceutical, government, or academic research setting; experience in integrating multidisciplinary research with perspectives ranging from clinical medicine to molecular biology; an understanding of experimental protocols, methods, and designs; strong oral and written communication skills, including technical writing and presentation; ability to work in diverse, cross-functional team environment; strong interest in working on ready-to-market products for pharmaceutical companies; comfort with college mathematics and literature search engines; interest in teaching with significant experience in academic or professional settings; experience in managing a team, outside consultants, or academic collaborations; interest in pursuing a technical career path outside a wet laboratory environment; and strong leadership, communication, facilitation, and presentation skills and enjoyment of understanding key details while thinking broadly about whole systems. Particular qualifications for the Diabetes Life Scientist include a deep understanding of normal, whole body metabolism; knowledge of the metabolic and endocrine derangements that occur in type 2 diabetes, particularly with respect to pathogenesis; deep knowledge of the insulin signaling pathway and mechanisms of peripheral insulin resistance and pharmacologic sensitization; knowledge of the biochemical signaling involved in pancreatic beta cell insulin secretion; and extensive familiarity with the biochemistry of the adipocyte. Entelos provides a new class of research tools for the biopharmaceutical industry—computer-based disease simulation models. For more information, please contact: Ms. Zarin E. Randeria, Director, Human Resources, Entelos, Inc., 4040 Campbell Avenue, Suite 200, Menlo Park, CA 94025. Tel: 650-330-5215; fax: 650-330-5252; email: randeria@entelos.com; Internet: http://www.entelos.com. Upon hiring, proof of eligibility to work in the US is required. [EOE]

Assistant/Associate Professor of Physiology: The Department of Physiology at West Virginia University School of Medicine is seeking a cardiovascular or renal physiologist for a tenure-track appointment at the Assistant/Associate Professor level. Preference will be given to vascular biologists using modern cellular/molecular techniques to study regulation or adaptation of the circulation. We seek outstanding candidates with a PhD degree and post-doctoral experience who will establish and maintain a vigorous, externally funded research program and who are enthusiastic about collaborating with existing faculty in physiology and other departments. The successful applicant will join a department of 14 full-time faculty with expertise in cardiovascular, renal, endocrine, neural, and pulmonary physiology and will have access to modern core facilities for transgenic rodent production, recombinant DNA technology, cell/tissue culture, and image analysis. The appointee will also be expected to contribute to departmental missions, including active participation in teaching and graduate education. A competitive salary and start-up package are available. Interested individuals should submit a complete curriculum vitae, a brief description of research interests and career goals, and the names and addresses (including e-mail) of three qualified references to: Matthew A. Boegehold, Search Committee Chairman, Department of Physiology, PO Box 9229, West Virginia University, Morgantown, WV 26505-9229. Review of applications will begin April 28, 2000 and will continue until position is filled. Women and minorities are encouraged to apply. [AA/EOE]
Positions Available

Junior & Senior Faculty: The Department of Physiology, the Cardiovascular Research Center and the Human and Molecular Genetics Center invites applicants for both Junior and Senior Faculty Positions. Suitable areas of research include, but are not limited to, functional genomics using cellular, molecular and/or genetic approaches (including SNP and sequence based biology) to study integrated physiology, with emphasis on cardiac, vascular, renal, and pulmonary systems. These positions can be filled immediately. Appointment requires a PhD or MD/PhD degree post-doctoral experience, and evidence of outstanding independent research potential. Faculty appointments will be through the Department of Physiology with joint appointments in the respective Centers as appropriate. We offer a highly competitive compensation package, ample start-up funds and state-of-the-art research facilities. All candidates are asked to provide a CV including research funding and research interests; teaching experience; a list of publications; an outline describing a proposed program of research; three representative reprints; and names, addresses and phone numbers of four references to: Medical College of Wisconsin, ATTN: J. Schimke, Department of Physiology, 8701 Watertown Plank Road, PO Box 26509, Milwaukee, WI 53226-0509. EOE M/F/D/V

Associate Research Scientist: The University of Iowa College of Medicine, Department of Internal Medicine, Cardiovascular Diseases Division, Transgenic Animal Facility, is seeking an Associate Research Scientist to perform basic or applied research on problems which present critical or unusually difficult obstacles to understanding and which involve the development of new theories or methodologies with complete responsibility for all aspects of the research project. To develop and integrate new state-of-the-art methodologies to the application of transgenic animals and to implement development of those methods in the Transgenic Animal Facility. Requires a person in this classification have the academic knowledge of a discipline generally associated with a Doctoral degree, or an equivalent professional degree, i.e., MD, DDS, or DVM. In addition, such a person will normally have accumulated several years of progressively responsible independent research work. This work will be evidenced by publications, inventions and the like, which have had considerable impact and value to the person’s field or discipline. Requires experience with the production and analysis of transgenic mice and an understanding of basic mouse genetics. Desires previous experience with the characterization of knockout mice and the use of recombinase based systems. Please send resume and cover letter indicating #39383 to: Carol Wehby, Human Resources, Internal Medicine, E400 GH, 200 Hawkins Drive, Iowa City, Iowa, 52242-1081. The University of Iowa is an Equal Opportunity and Affirmative Action employer. Women and minorities are strongly encouraged to apply.

Position Wanted

Animal Study Proposal Writing and Animal Study Design: 12-years experienced laboratory animal research support veterinarian starting small business as an outsource for animal study design and writing. Specializing in difficult animal models, analgesics, anesthetics, and peri-procedural care. Will work with scientists and their program veterinary staff. Please contact Victoria Hampshire, VMD, Advanced Veterinary Applications. Tel: 301-320-6082; email: vetcare@msn.com.
Letters to Gene Renkin

Kate Bárány writes: “Thank you for your birthday greetings. It is a much appreciated tradition of APS to stay in contact with Senior Physiologists. As I browsed through the “News from Senior Physiologists,” I noted that most were written by males, who basically continued their professional activities. I myself did not plan to retire but recently became visually handicapped and could not continue my research and teaching. Therefore, as Professor Emerita I am focusing my efforts on service, in particular, women’s issues.

“I am a member of the Chancellor’s Committee on the Status of Women (CCSW) at the University of Illinois at Chicago since 1976. The CCSW is committed to enhancing the opportunities of women in academia and mentioned below are some of the issues we have addressed: A university-specific problem is that the tenure clock and biological clock are running simultaneously. The need for childcare centers on campus is paramount for working mothers especially. A crucial task is to balance work and home: though dedicated to work, women are often derailed by child-bearing and child-rearing responsibilities. In recent times, men are sharing more of the care-giving at home; still, in general, the women provide the bulk of it. To help women to focus and be efficient, the CCSW has organized workshops for tenure and promotion and for mentoring, has established special services (e.g. for returning women students), and has supported training for leadership. An important issue is to have a family-friendly environment. This ranges from provision of adequate women’s washroom facilities to flexible time schedules. There are surveys demonstrating salary inequities between males and females; to remedy them it is important that a separate pool of money should be earmarked to equalize salaries.

“I advocate that starting faculty should concentrate on excellence in research and teaching and should choose committees that are less time consuming (e.g., seminar committee that also provides good opportunities for networking). Before tenure, one should avoid controversial projects. One should be goal oriented and plan publications in a way that no calendar year is missing from the list.

“In closing, I would like to add some autobiographical data: Michael, my husband, and I were born in Hungary, we both are Holocaust survivors. We are happily married for over 50 years, raised two children, who became successful scientists, and have four grandchildren. Michael and I have been collaborating in muscle research. I won several teaching awards and was named The Woman of the Year in 1996 at the University of Illinois at Chicago.

“If you have any questions or comments, please send me an e-mail: kbarany@uic.edu.”

J.G. Llaurado writes: “When I entered the research arena in the fifties the ‘hot’ issues were steroids and antibiotics. I participated in the discovery of aldosterone while at Hammersmith Hospital in London, UK, characterized postoperative transient aldosteronism while at Otago University in Dunedin, New Zealand, and wrote a dissertation on anabolic steroids while at MD Anderson Hospital in Houston, TX, never thinking that this expression would become a household term, or should I say a ‘sportshold’ term?

“My perennial curiosity for mathematics and engineering was, to a large extent, satisfied in the early 60’s when I obtained a Master’s in Biomedical Engineering. Then, for a decade we had extreme difficulties to have research papers on extrarenal effects of aldosterone using computer simulation and analysis accepted in biological journals. The ‘old guard’ in the editorial boards thought the computer was encroaching on their domain. I must give credit to Eugene F. Yates, editor of Journal of Applied Physiology, for being one of the few understanding editors at that time.

“When difficult times for obtaining monies for research came, I moved to the clinical specialty of Nuclear Medicine where I am still practicing as I hold the title of Professor of Radiation Sciences at Loma Linda University School of Medicine. I continue working because I enjoy it. If one day the powers that be try to make life difficult for me, I shall retire and concentrate on my hobbies, i.e., teaching mathematics and perfecting my Russian, a fascinating language that I have been learning throughout the years.

“The fifties and sixties were two glorious decades for research. When one had an idea to carry out an experiment, one could go straight to the animal room, select a few rats and treat them accordingly. It would have been unthinkable that one’s notion had to be put in writing, formalized, and distributed to several institutional committees, manned by persons who knew little or nothing about the topic, for approval. And yet great discoveries were made at that time. Nobody remotely thought of forging results or adulterating experiments. Honesty prevailed. I find it extremely sad to see nowadays all the bureaucratic paperwork that must be attached to a scientific manuscript submitted for publication. Even more distressing is the detailed account each author must give on what he/she has done in the paper submitted to certain journals.

“On the family aspect I am very proud to be the father of four sons and two daughters all gainfully employed in..."
“In 1974, the American College of Veterinary Internal Medicine (ACVIM) was established, a culminating result of the early activities of the veterinary ‘Young Turks.’ Diplomats must meet certain training and experience requirements, pass a general examination, and a specialty examination in any of 4 specialties (cardiology, internal medicine, neurology, and oncology) to become board certified. Currently, there are some 95 board certified veterinary cardiologists in the ACVIM.

“Another field of interest developed in the 1950s after the first tranquilizer, chlorpromazine, was introduced into clinical use. Unexpected sudden deaths occurred in some patients, requiring design of an electrocardiographic study in dogs. It was found that chlorpromazine prolonged the QT interval, blunted or reversed the T waves, and altered the form of the ST segment. These changes could be either antiarhythmic or arrhythmogenic. These and later findings gradually led to the universal application of electrocardiography in preclinical experimental animal studies before testing drugs in man. This opened a fascinating field for the application of comparative electrocardiography and cardiology.

“In 1990, I retired at the age of 70 from the faculty of the University of Pennsylvania, School of Veterinary Medicine, in accordance with my belief that older faculty members should become emeritus to open positions for younger faculty members and to maintain a proper faculty age balance.

“Since retiring from the University, I have become a full-time consultant to the drug industry in the field of cardiovascular toxicology. This involves reading and reporting on thousands of rat, monkey, and dog electrocardiograms together with other toxicologic data yearly, a fascinating full-time occupation.

“Thus, emeritus status does not mean that one need stop working or contributing to one’s field.”

Kenneth D. Gardner, Jr., writes: “Thank you for your letter of October 3, 1999, congratulating me on my 70th birthday. Your letter reached me in the Sierras of California where, as a retiree, I spent the summer horseback riding, cattle-pushing, and cowboying. Back to the University for the winter months, I relish my participation on the Medical Center’s Institutional Review Board. Its bimonthly meetings are laced with contemporary scientific and bioethical issues. I also serve on two medical society and state health department committees in a personal effect to bridge community and medical school.

“What did I learn from 40 years in academe? 1) Anticipate change. While the world may look to the scientist to discover, analyze, transmit, and evaluate new medical knowledge, the university employer looks to the economic value of the scientist. The scientist’s value changes with time, as the public’s perception of research and science evolve. In response, employment opportunities, available funds, and the career goals of students also mutate. 2) Be a ‘turn on.’ Make like you are in an elevator. The first floor door is shutting. You must get off at the second floor. A carefully constructed, brisk thirty-second account of your research that leaves the listener tantalized, informed, and thinking, ‘I want to hear more.’ 3) Don’t be side tracked. Be a good teacher, serve on your share of committees, but do not sacrifice research time!”

Letters to Ken Zierler

Robert L. Vick writes: “Thank you for your letter on the occasion of my 70th birthday. I have been retired for five years, and I enjoy it immensely; however, I have been surprised at how little time I seem to have to get done the things that I want to do.

“Before I retired from Baylor College of Medicine, I had thought that I would have more time to play golf and sail, but I have been too busy with other things to do either of those at all. I have com-

(continued on page 104)
completed several building projects, the largest of which were a concrete bulkhead and a 200 foot pier at our second home, on Galveston Bay. I have enjoyed improving and maintaining our homes and several rental properties that my wife, Rose, and I have acquired in Houston, Dallas, and Oxford, MS. I have adjusted my priorities to get the heavy work done first, before I get ‘old.’ This has meant limiting the time devoted to my principal interest, which I will call genealogical history, which deals not just with who people’s ancestors were, but where and how they lived and what they did. Nevertheless, I have found enough time to extend my field of study from my own family to many others who lived in the rural county in Mississippi in which I was born and reared. Since Anglo settlement in that area began only in 1836, when the Chickasaw Indians were removed, records from the very beginning of the present culture are available. As a result of spending many happy hours in libraries, courthouses, cemeteries, and archives, and in correspondence with others, I probably have become the foremost authority on the personal history of that region!

“Although I am no longer associated with the laboratory and the classroom, I keep up with what is going on in Medicine and Physiology through The New England Journal of Medicine and the publications of the APS. My training in physiological research has benefited me enormously in my historical research. I still obtain and analyze data and still construct and test hypotheses, and what I find when the data come in can be just as surprising and delightful in the archives as in the laboratory!

“On the personal side, Rose and I both are in good health and can remember things reasonably well. We enjoy visiting with family and friends and traveling a bit, but our greatest joy is being there as our young grandson grows up.”

M. Elizabeth Tidball writes: “Your letter of almost a year ago has languished too long on my desk, not from lack of interest, but rather from a wonderfully full plate of opportunities and responsibilities. I hope you have read Marie Cassidy’s review of our book, Taking Women Seriously: Lessons and Legacies for Educating the Majority (American Council on Education/Oryx Press, 1999), which will make clear part of what I have been doing most recently and what has been keeping me from your letter.

“Rather than detailing recent or remote happenings in my life, I would share with you an important relationship with another senior physiologist, William B. Youmans, who was my major professor at the University of Wisconsin-Madison for both my MS and PhD degrees when he chaired that physiology department.

“I went to Madison in the fall of 1952 with two half-time jobs in hand—both teaching assistantships—in the Department of Physiology in the Medical School where I hoped some day to become a graduate student. At the end of the year, which had also been Youmans’ first at Madison, he told me that he now had an abundance of applications for graduate fellowships and could offer me only one assistantship, but he would like me to consider starting graduate school. I told him there was no way my husband Charlie and I could afford two kids in school (us!). Then I went home for lunch, and there I found a letter from Good Housekeeping magazine offering me $500.00 for an article I had sent them rebutting an earlier piece on the disadvantages of being married. (Charlie and I were married in Madison on October 25, 1952, so I was an expert!) Well, I virtually ran back to school with letter in hand, knocked on Youmans’ door, and breathlessly handed him the letter. Not only did I begin my formal graduate studies at Madison forthwith, but Youmans and I became great friends over the next seven years when I was his student for my MS (1955) and then, after a detour to the University of Chicago for Charlie to complete his MD, for my PhD (1959).

“All the while Bill Youmans was convinced of my writing abilities as well as my scientific acumen—confidence that was to see me through the next many years when I eventually became the first woman full professor of physiology at the George Washington University Medical Center in Washington, DC, in 1970. Spouse Charlie had earlier become chair of the Department of Physiology at GWU but then had to resign that post in order for me to continue my academic career there.

“I do not recall exactly when Youmans retired, but eventually he and his wife Cynthia, who had also become our friend, moved to the Olympic Peninsula in Washington state, living near Port Angeles. We visited them there on several occasions, always laughing over the times we had shared so many years before, and telling them again how important they had both been to each of us in our personal and professional development.

“Now you are wondering why I am telling you all these things. It is because Bill Youmans, in an era when most men were especially harsh on women students—and bright women beware—was enormously supportive of both my scientific and creative capabilities. And while I made my way reasonably well as a physiologist, I recognized that the way for other women in graduate and medical education did not regularly have the kind of assistance and support Bill had given me when I was a student. As a result, I spent many hours working to establish opportunities for women—from co-founding a Women’s Studies Master’s Degree Program at GW, to serving on the Medical School admissions committee for many years, to founding the Task Force on Women for the American Physiological Society and the Committee on Committees, to establishing the Committee on the
Education and Employment of Women in Science and Engineering at the National Research Council/National Academy of Sciences, and so on and on. Further, my research took a turn in the same direction when I began to apply my natural science capabilities to research on environments for the education of women. Taking Women Seriously is another result of my ways of combining scientific research and writing understandably—abilities nurtured by Bill Youmans from the beginning and continuing to the present time. It is also noteworthy that Charlie is a coauthor of this book, attesting to the durability of our team research also first encouraged by Bill Youmans in the physiology lab.

“There is mutuality here as well. Bill is still doing some writing himself, mostly in the area of medical/physiology history. When he has found himself too far removed from library resources with easy accessibility, Charlie and I have been able to fulfill his need through searching at the National Library of Medicine and sending off photocopies whenever that made a contribution to his efforts. We also serve as ‘pre-editors’ when he prepares articles for journals.

“I have thought you would be intrigued by this small bit of our story because it tells of some 48 years of relationships—personal and professional—that have nourished us all and which continue to this day. Bill and Cynthia now live near their son Gilbert who is a professor at the University of Missouri-Columbia.

“They will always serve as important role models for us as well as special friends.

“Thank you so very much for writing. They will always serve as important role models for us as well as special friends.

“Thank you so very much for writing. I am a little leery of those cheerful reports of retired scientists appearing in The Physiologist. I am convinced, based upon my own experience and that of colleagues, that such correspondents are deluding themselves, as well as those who, one day, will be following them into retirement. It is not ‘a bowl of cherries!’

“If you hated your job, or your boss, or both, it is easy to leave it all behind. If, on the other hand, you have enjoyed your work over the years, leaving it can be somewhat traumatic. There is a large gap that appears in your persona when you are no longer ‘the professor of —’ or director of a laboratory. Even when you leave without having been asked, and are in good health, financially secure, and with many other interests to pursue (as has been my fortunate case), this pain of separation is real. I suspect it is more or less so for all of us who retire. The good news is that this passes off in time as you progress further into your new interests in the decades ahead. Although I still have a few obligations to perform at my medical school and hospital in the capacity of clinical professor, I no longer look forward, as I once did, to traveling into Newark, unless it is to utilize the excellent library facilities in my new life as full-time medical historian.

“A major decision is whether to retire in a stepwise manner or all in one fell swoop. Although unplanned, my own separation came in steps as a replacement was sought to fill my position. The gradualness eased the process in one sense, but my continued presence as one on his way out subjected me to a number of slights, real and/or imagined to which such individuals may fall prey. John Lancaster of The New Yorker has written of the business world, ‘Never fall in love with a company, because, however well you think you’re being treated, the company never falls in love with you.’ I believe the same holds true in academia. With this in mind, perhaps, others headed for retirement do so abruptly and completely. If there are other interests awaiting you that you wish to pursue, this may be the wisest course. If not, I recommend plugging along in your present job as long as they let you and as long as you are having fun.

“For me if I have rambled on too much, but I now have become a full-time writer; that is what I do. In any event, best wishes to all in the new year and the new millennium.”

News From Sr. Physiologists

Allen Weisse writes: “Please forgive the long delay in my reply to your letter on the occasion of my 70th. birthday. Actually, your note was several months early, so I have waited a bit after my birthday (December) to give you a status report in the ‘wake’ of my having achieved three score and ten. You ask for ‘words of wisdom.’ Words I have aplenty; wise or not is for others to judge.

“There is mutuality here as well. Bill is still doing some writing himself, mostly in the area of medical/physiology history. When he has found himself too far removed from library resources with easy accessibility, Charlie and I have been able to fulfill his need through searching at the National Library of Medicine and sending off photocopies whenever that made a contribution to his efforts. We also serve as ‘pre-editors’ when he prepares articles for journals.

“I have always been a little leery of those cheerful reports of retired scientists appearing in The Physiologist. I am convinced, based upon my own experience and that of colleagues, that such correspondents are deluding themselves, as well as those who, one day, will be following them into retirement. It is not ‘a bowl of cherries!’

“If you hated your job, or your boss, or both, it is easy to leave it all behind. If, on the other hand, you have enjoyed your work over the years, leaving it can be somewhat traumatic. There is a large gap that appears in your persona when you are no longer ‘the professor of —’ or director of a laboratory. Even when you leave without having been asked, and are in good health, financially secure, and with many other interests to pursue (as has been my fortunate case), this pain of separation is real. I suspect it is more or less so for all of us who retire. The good news is that this passes off in time as you progress further into your new interests in the decades ahead. Although I still have a few obligations to perform at my medical school and hospital in the capacity of clinical professor, I no longer look forward, as I once did, to traveling into Newark, unless it is to utilize the excellent library facilities in my new life as full-time medical historian.

“A major decision is whether to retire in a stepwise manner or all in one fell swoop. Although unplanned, my own separation came in steps as a replacement was sought to fill my position. The gradualness eased the process in one sense, but my continued presence as one on his way out subjected me to a number of slights, real and/or imagined to which such individuals may fall prey. John Lancaster of The New Yorker has written of the business world, ‘Never fall in love with a company, because, however well you think you’re being treated, the company never falls in love with you.’ I believe the same holds true in academia. With this in mind, perhaps, others headed for retirement do so abruptly and completely. If there are other interests awaiting you that you wish to pursue, this may be the wisest course. If not, I recommend plugging along in your present job as long as they let you and as long as you are having fun.

“For me if I have rambled on too much, but I now have become a full-time writer; that is what I do. In any event, best wishes to all in the new year and the new millennium.”

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Nutritional and Environmental Influences on the Eye

Allen Taylor (Editor)
CRC Series in Modern Nutrition
Boca Raton, FL: CRC, 1999, 285 pp., illus., index, $129.95

This book is the first of its kind in the field on contributions of nutritional and environmental factors in degenerative eye diseases. It is edited by Allen Taylor and authored by a group of experienced scientists who are leaders in their own subspecialty in eye research. The studies reviewed in this book present no doubt that sunlight, ultraviolet light, and oxygen-derived and other forms of free radical species derived from organic compounds are the agents causing oxidative stress which is involved in, at least, two blinding diseases that inflict the majority of people at old age, worldwide.

This book, compiled in 13 chapters, 285 pages, with experimental data in illustrations and tables contributed by several investigators, does an excellent job in explaining the hypotheses and the roles of various antioxidant nutrients in prevention and, possibly, treatment of cataract and age-related macular degeneration (AMD). In almost all the chapters, the authors have emphasized the significance of various commonly used nutrients. In addition, some important scientific areas, not popularly known by everyone, are brought to light. For example, a systematic and accurate method of cataract classification useful for epidemiological studies on environmental and nutritional influences in age-related cataract in the human to make the data comparable and improved is described in Chapter 3. Likewise, phase separation in cataract formation, and its application in testing of candidate anticataract compounds as described in Chapter 7, could be of importance.

A few typographical and printing errors, although present, should not affect the quality of the overall material presented by Allen Taylor, who is one of the leaders in the field of vision research. In Chapter 1, the editor introduces the overall subject matter of the book and layout of the 13 chapters. Chapter 2 is on oxygen free radicals in the pathogenesis of cataract and possibilities for therapeutic interventions by ascorbate and pyruvate in experimental cataracts. The ocular effects of deficiency of these compounds, will be of significance. Chapter 3 is on the function of the lens and development of modern methods for quantifying cataracts. Chapter 4 is an elaborate review of nutritional and environmental influences on risks for cataract, based on the studies on lens in vitro and in animal models for cataract. Chapter 5 is on evaluation of the epidemiological studies of nutrition and cataract. Chapter 6 is a brief review of several nutrients such as carbohydrates, proteins and amino acids, and micronutrients such as vitamins and minerals, linked to cataracts in animals. Chapter 7 addresses the theory and mechanistic information about phase separation and its application in the study of mechanisms of cataract and evaluation of anticataract efficacy of test compounds. In Chapter 8, the role of sunlight and ultraviolet light (UVB) as risk factors for cataract, pterygium, and AMD and epidemiological studies are elegantly summarized. Chapter 9 highlights tobacco smoking as a possible risk factor for cataract and AMD, similar to other ailments such as pulmonary and heart diseases, stroke and cancer. Hard evidence is needed for this new area of scientific endeavor. Chapter 10 includes a concise and simplified introduction of AMD with its pathology and classification based on the available knowledge and also gives details about drusen. Chapter 11 is on the history and etiology of AMD relating to oxidative stress, impairment of choroidal circulation, and degradation of Bruch’s membrane. This chapter ends with a description of the epidemiological studies on the effects of antioxidant nutrients on macular degeneration. Chapter 12 gives a description of the macula and carotenoids with functional and nutritional roles and some epidemiological studies. It also includes information about the formation of lipofuscin granules in the retina. In the last, but not the least, Chapter 13, the authors describe a new technique for in vivo psychophysical assessment of lens optical density, an area that is not familiar to the researchers in the area of lens and cataract. There is no question that this technique could measure the extent of AMD. Whether the measurement of optical density of the lens could be applied to evaluate the risk factors for cataract is questionable. This noninvasive technique might be useful for epidemiological studies.

In conclusion, this book as one of the important and informative CRC Series in Modern Nutrition is related to the eye diseases of the elderly, such as cataract and AMD and is a timely and leading contribution for the twenty-first century. It is informative and important in planning future approaches for prevention and treatment of the degenerative eye diseases. Thus, this book will be valuable for a broad group of readers, including medical students, ophthalmologists, nutritionists, epidemiologists, pharmacologists, and basic scientists.
Hormone concept and the connection with his discovery of secretin, Starling introduced the term 'hormone' concept and the law of the heart ('Starling forces'), the discovery (together with his brother-in-law Bayliss) of secretin, and the law of the heart ('Starling curves'). There is a clear exposition of Starling's primacy in fully appreciating his Croonian Lectures of 1905. In 1914, his request in 1899 for a more secure post as head of the department of physiology ('tenure') and greater research time went unanswered by the administration. Not unlike today's negotiating patterns, the administration was possibly thinking that the recent construction of a new and modern physiological laboratory would keep Starling at Guy's. Prior to receiving a response, he chose to accept the appointment as Jodrell Professor of Physiology at University College London where there was both greater job security and salary. It would appear that little is new in the world of university academic medical center life!

The chronology of his years at University College London, including activities related to the attendance of women at meetings of The Physiological Society and chairmanship of the ‘Research Defence Society’ to counter the anti-vivisectionist movement, provide detailed insight into the life of a physiology department chairman in the 1900s. The description of his participation in World War I reflects the predictable difficulty that research based analytical scientists often have with the decisions of government and military officials (i.e., politicians, bureaucrats, methods); Starling described them as “kindly gentlemanly stupidity”. The closing chapter, dealing with the impact of Starling as a person, covers multiple topics: interactions with domestic and international scientific colleagues (including Germans in the period surrounding the war) and Nobel Prize winners; his personal health and life style including his many living places in London and his wife, Florence Amelia Wooldridge, the daughter of a physiologist.

As is customary with historical works, much importance lies with the cast of characters and this book makes liberal and successful use of footnotes about each new person on the page where they are introduced. There are abundant photographs, figures, tables, hand written correspondence and other graphic material, much of it reproduced in its originally published form, which add significantly to the clarity of the exposition. Starling’s bibliography is set out in 5-year epochs, loosely coupled to his career milestones. There are approximately 100 other citations which relate to Starling, his life and accomplishments. The index is detailed and thorough, largely consisting of the persons referred to throughout the book.

I liked this book. It is concise, clearly focused, insightful and informative. It has escaped the turgid prose of much that is offered as biography but is really history in disguise. As a clinical physiologist, Professor Henriksen has done us all a service by inviting us to know more about the man whose several scientific accomplishments contributed so much to the body of knowledge used in the care of patients, i.e., clinical physiology.

Gerald F. DiBona
University of Iowa
ACDP Presents Distinguished Service Award to Norman Briggs

At its 1999 Winter Retreat in Palm Springs, The Association of Chairs of Departments of Physiology honored F. Norman Briggs with the ACDP Distinguished Service Award. Briggs is the former Chairman of the Department of Physiology at the Medical College of Virginia and Past-President of ACDP. He is currently an Emeritus Distinguished Professor.

The award was presented to Briggs by his PhD student, John Solaro, now Head of Physiology at University of Illinois at Chicago, and by Ernst Knobil, who was Chairman of the Department of Physiology at University of Pittsburgh, when both Briggs and Solaro were there. Knobil’s presence was special in that Briggs had presented Knobil the Distinguished Service Award in 1983. Three other students in the Pitt department at the time were also at the ceremony: Richard Bergman, Chair of Physiology of University of Southern California, who trained with John Urquhart; Raymond Frizzell, Chair of Physiology at University of Pittsburgh, who trained with Stanley Schultz; and Earl Homsher, former Acting Chair at UCLA, who trained with Briggs.

R. Clinton Webb Selected MCG Chairman of Physiology and Endocrinology

R. Clinton Webb, a professor and researcher in the University of Michigan Department of Physiology, has been named Greenblatt Professor of Endocrinology and chairman of the Medical College of Georgia Department of Physiology and Endocrinology.

Webb also was named professor in the MCG School of Graduates Studies. “We are fortunate to have an individual of Dr. Webb’s qualifications to lead the academic and research efforts of the Department of Physiology and Endocrinology,” Darrell G. Kirch, dean of the MCG School of Medicine and senior vice president for clinical activities, said in recommending the new chairman.

“He is an outstanding scientist held in high regard by his colleagues, both nationally and internationally.” Webb earned a doctorate in anatomy from the University of Iowa in 1976. He completed postdoctoral work at the University of Michigan and the Universitaire Instelling Antwerpen Department of Medicine in Belgium. He joined the University of Michigan faculty in 1979 as an assistant research scientist, was named assistant professor the next year, associate professor in 1983 and professor in 1986.

In 1996, he was a visiting professor at the University of New Mexico Department of Physiology and visiting research scientist at the Lovelace Institutes in Albuquerque. He is a member of the editorial board of the American Journal of Physiology: Endocrinology and Metabolism; Hypertension; Journal of Hypertension; Circulation Research; General Pharmacology: The Vascular System; Biological Research for Nursing; and the Journal of Biomedical Science.

Webb is a fellow of the American Heart Association’s Council on Circulation and Council for High Blood Pressure Research.

He is a member of the American Physiological Society’s Cardiovascular and Cell and Molecular Physiology Sections, the Society for Experimental Biology and Medicine, the Inter-American Society of Hypertension. The American Society of Hypertension, the International Society of Hypertension, the American Society of Pharmacology and Experimental Therapeutics and the North American Vascular Biology Organization.

He served as president and vice president of the Michigan Heart Association. His research on the mechanisms of vascular change in hypertension is currently funded by a $1.5 million grant from the National Institutes of Health.
Recently, **Banji Joseph Adegunloye** moved from the School of Biochemical/ Molecular Biology, University of Leeds, Leeds England to the Department of Pharmacology & Physiology, MCP Hahnemann University, Philadelphia, PA.

Now a Research Fellow in the Department of Physiology, College of Medicine, Chung Ang University, Seoul, Korea, **Hye-woon Bang** was formerly with the Department of Physiology and Biophysics, Finch University Health Science, North Chicago, IL.

Originally with the Department of Pharmacology and Physiology, University of Rochester School of Medicine, Rochester, NY, **Kenneth D. Cohen** is now with the Department of Biological Sciences, Western Michigan University, Kalamazoo, MI.

**Charles W. Cortes** has joined the Department of Preventive Cardiology, Hartford Hospital, CT. Cortes was previously with the Department of Rehabilitation Medicine, University of Medicine & Dentistry of New Jersey, Stratford, NJ.

Formerly with the Physiology Program, Harvard School of Public Health, Boston MA, **Claire M. Doerschuk** has recently relocated to Rainbow Babies, Children’s Hospital, Cleveland, OH.

**Dariush Elahi** was affiliated with the Geriatrics Laboratory, Massachusetts General Hospital, Boston, MA. Presently, Elahi is associated with the Department of Medicine, Division of Gerontology, Baltimore, MD.

Affiliating with the Department of Physiology, University of Kentucky, Lexington, KY, **Ming Cui Gong** has moved from the Department of Physiology, University of Virginia Medical Center, Charlottesville, VA. Currently with the Department of Anesthesiology, The Norwegian Radium Hospital, Oslo, Norway, **Elin Helset** has left the Department of Anesthesiology, The National Hospital, Oslo, Norway.

Having affiliated with the Department of Physiology and Biophysics, University of California, Irvine, CA, **Kimberly Huey** has left the Department of Medicine, University of California, San Diego, La Jolla, CA.

**Hans G. Folkesson** has left the Department of Animal Physiology, University of Lund, Lund, Sweden, to join the Department of Physiology, Northeastern Ohio Universities College of Medicine, Rootstown, OH.

**Wieslaw Kozak** has recently affiliated with the Department of Physiology, Medical College of Georgia, Augusta, GA. Previously, Kozak was associated with the Pathophysiology Division, Lovelace Respiratory Research Institute, Albuquerque, NM.

Affiliating with the Department of Pharmacology, University of Pittsburgh, Pittsburgh, PA, **Clara E. Magyar** is no longer with the Department of Physiology, University of Southern California School of Medicine, Los Angeles, CA.

**Diane Eileen McClure** is now associated with the Department of Animal Resources, University of California, Santa Barbara, CA. McClure was formerly with the Department of Veterinary Preventive Medicine, Ohio State University, Columbus, OH.

Recently affiliating with the Center for Cardiovascular Research, University of Rochester Medical Center, Rochester, NY, **Joseph M. Miano** has left the Department of Physiology, Medical College of Wisconsin, Milwaukee, WI.

**Karen Alice Munger** has moved from the Renal Division, VA Medical Center Research Office, Atlanta, GA. Munger has recently affiliated with the Department of Nephrology & Hypertension, VAMC and University of California, San Diego, CA.

Formerly, **James Lee Park** was with the Department of Physiology, University of Michigan, Ann Arbor, MI. Recently, Park joined Diabetes and Metabolic Diseases, Parke-Davis Pharmaceutical Research, Ann Arbor, MI.

Associating with the Department of Pharmacology and Toxicology, University of Oulu, Oulu, Finland, **Christopher Joseph Pemberton** has left the Department of Christchurch School of Medicine, University of Otago, Christchurch, New Zealand.

**Sidney K. Pierce** is currently the Professor and Chair, Department of Biology, University of South Florida, Tampa, FL. Pierce had been with the Department of Biology, University of Maryland, College Park, MD.

Having accepted a position with the Department of Medicine, University of Louisville, Louisville, KY, **Sumanth D. Prabhu** has moved from the Department of Medicine, University of Texas Health Science Center, San Antonio, TX.

Recently, **Michael A. Reutter** has joined the faculty of Century College White Bear, Minnesota. Reuter was previously with the Department of Cell Biology and Neuroanatomy, University of Minnesota, Minneapolis, MN.

Formerly the Director of Thermoregulation Lab, Legacy Health System, Portland, OR, **Andrej A. Romanovsky** is now the Director of Trauma Research, St. Joseph’s Hospital, Phoenix, AZ.
People & Places

**Kathy L. Ryan**, a Research Physiologist, is now affiliated with the Institute of Surgical Research, Ft. Sam Houston, TX. Ryan’s previous affiliation was with the Department of Biology, Trinity University, San Antonio, TX.

Presently, **Christine G. Schnackenberg** is with the Renal Pharmacology Division, SmithKline Beecham Pharmaceuticals, King of Prussia, PA. Schnackenberg was formerly with the division of Nephrology and Hypertension, Georgetown University Medical Center, Washington, DC.

**Louis Simchowitz** has affiliated with the Office of Grant and Education Program as a Senior Program Officer, Howard Hughes Medical Institute, Chevy Chase, MD. Simchowitz was formerly with the Department of Internal Medicine, Washington University School of Medicine, St. Louis, MO.

**Virend K. Somers** has joined the Divisions of Hypertension and Cardiovascular Diseases, Mayo Clinic, Rochester, MN. Prior to his new position, Somers was with the Department of Internal Medicine, University of Iowa College of Medicine, Iowa City, IA.

Having associated with Safety Pharmacology, Battelle Memorial Institute, Columbus, OH, **Michael James Stonerook** has moved from Parke-Davis Pharmaceutical Research Ann Arbor, MI.

**Sonja R. Summerour Clemmons** recently affiliated with the Department of Medicine and Bioengineering, University of Pennsylvania, Philadelphia, PA. Previously, Summerour Clemmons was with the Department of Bioengineering, University of California, San Diego, CA.

**Biao B. Sun** has affiliated with the Department of Genetics, Harvard Medical School, Boston, MA. Previously, Sun was with the Department of Physiology, University of Wisconsin, Madison, WI.

Having moved from the Department of Physiology, University of Michigan, Ann Arbor, MI, **David S. Weber** has joined the Department of Physiology, Medical College of Georgia, Augusta, GA.

**Richard E. White** is presently with the Department of Pharmacology and Toxicology, Medical College of Georgia, Augusta, GA. Prior to his new position, White was associated with the Department of Physiology and Biophysics, Wright State University, School of Medicine, Dayton, OH.

Having affiliated with the Department of Life Sciences, University of Texas, San Antonio, TX, **Charles J. Wilson** has moved from the Department of Anatomy and Neurobiology, University of Tennessee, Memphis, TN.

Books Received

**Development of the Gastrointestinal Tract.**

**Endogenous and Exogenous Regulation and Control of Physiological Systems.**

**Nutritional and Environmental Influences on the Eye.**

**Sound.**

**Symmorphosis: On Form and Function in Shaping Life.**
Announcements

Lake Cumberland Biological Transport Group Meeting

It is time to plan for the 2000 Lake Cumberland Biological Transport Meeting (affiliated with APS). The central theme of the meeting is biological transport, but presentations in other areas are welcome. This is an excellent forum for principal investigators, postdoctoral fellows, and graduate students alike to present their data and receive feedback.

The scientific sessions will be held in the mornings and evenings on Sunday, June 11 to Tuesday, June 13. Afternoons are free to enjoy swimming, fishing, golfing, riding, hiking, or any of the other activities available at the site of the meeting, Lake Cumberland State Resort Park, Jamestown, KY.

For more information, contact:
Roger Worrell    Ann Sherry
Instructor    Postdoctoral Assistant
Emory Univ. Medical School    Univ. of Cincinnati
1648 Pierce Drive    PO Box 670576
Atlanta, GA 30322    Cincinnati, OH 45267
Tel: 404-727-9141    513-558-3021
Fax: 404-727-0329    513-558-5738
E-mail: rworrell@CCMS-renal    ann.sherry@uc.edu
physio.emory.edu
or visit the Web site at:
http://iupucbio1.iupui.edu/cumberland/

USDA Adopts Guides in Handling, Treatment and Care of Farm Animals

The USDA-APHIS has just recently announced adoption of two Guides, Titled Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching, published by the Federation of Animal Science Societies (FASS), and the Guide for the Care and Use of Laboratory Animals, published by the Institute of Laboratory Animal Resources. APHIS is adopting these guides to assist regulated entities in meeting the standards in the regulations as they apply to the handling, care, treatment, and transportation of farm animals used for nonagricultural purposes (primarily research and exhibition).

Copies of the Ag Guide are available through the Federation of Animal Science Societies.

To order, go to http://www.fass.org/fass_publications.html
Each copy is $10.00 and there is an order form for purchasing with credit card. If you would like information regarding a bulk rate, contact Chuck Sapp, EVP-Administration, FASS, chucks@assochq.org, 217-356-3182.

Fulbright Offers Lecturing/Research Grants in 130 Countries

The Fulbright Scholar Program’s annual competition opened March 1 for lecturing and research grants in 130 countries.

Opportunities are open not only to college and university faculty and administrators, but also to professionals from the business community and government, as well as to artists, journalists, lawyers, independent scholars and many others.

Grants are available to faculty and administrators from two-year, four-year and graduate institutions.

Fulbright awards vary in duration from two months to an academic year or longer. While foreign language skills are needed in some countries, most lecturing assignments are in English. Approximately 80% of the awards are for lecturing.

Application deadlines for 2001-2002 grants are:
May 1, 2000-Fulbright distinguished chairs awards in European, Canada, and Russia
August 1, 2000-Fulbright lecturing and research grants worldwide
November 1, 2000-Spring/summer seminars in Germany, Korea, and Japan for international education and academic administrators, as well as for the summer German studies seminar

For information, contact the Council for International Exchange of Scholars (CIES) at 3007 Tilden Street, NW, Suite 5L, Washington, DC 20008-3009. Telephone: 202-686-7877; Email: apprequest@cies.iie.org. Information and an application are also available on the web at http://www.cies.org.
Announcements

FASEB Physician-Scientist Report Released

The FASEB report, “The Physician-Scientist: Career Issues and Challenges at the Year 2000” is available through the FASEB Home Page at http://www.faseb.org. The report has been published in the February issue of the FASEB Journal and if you have an on-line subscription, it can be accessed directly at http://www.fasebj.org/cgi/content/full/14/2/221. If you would like to request reprints, Tamara Zemlo, PhD, MPH, Policy Analyst, Office of Public Affairs, Federation of American Societies for Experimental Biology, 9650 Rockville Pike, Bethesda, MD 20814-3998 Voice: (301) 571-0658 Fax: (301) 571-0686 tzemlo@opa.faseb.org

Pain, Distress and Stress in Research Animals: Current Standards and IACUC Responsibility

The Scientists Center for Animal Welfare (SCAW) is presenting a conference on Pain, Distress and Stress in Research Animals: Current Standards and IACUC Responsibility. The conference will be held May 18-19, 2000 in Baltimore, MD. For registration information, please visit SCAW’s website at http://www.scaw.com. Topics of discussion include:
- Proposed Changes: Effect on the Animal Research Community
- Current Interpretation of the Three R’s and Comparison with US Government Principles
- IACUC Responsibility for Pain Procedures
- Humane Endpoints for Research Animals
- Pain and Stress in Behavioral Research
- Post Operative care for Rodents

Deadlines! Deadlines!

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

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<th>Award</th>
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<tr>
<td>Teaching Career Enhancement Awards</td>
<td>April 15</td>
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<td>John F. Perkins, Jr., Memorial Fellowships</td>
<td>May 15</td>
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<td>William T. Porter Fellowship Award</td>
<td>June 15</td>
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<td>NIDDK Minority Travel Fellowships for APS Conference</td>
<td>July 16</td>
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<td>Research Career Enhancement Awards</td>
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<td>Teaching Career Enhancement Awards</td>
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<td>Shih-Chun Wang Young Investigator Award</td>
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<td>Arthur C. Guyton Awards in Integrative Physiology</td>
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<td>Giles F. Filley Memorial Awards for Excellence in Respiratory Biology</td>
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<td>Lazarro J. Mandel Young Investigator Award</td>
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<td>NIDDK Travel Fellowships for Minority Physiologists for EB Meeting</td>
<td>November 23</td>
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MEMBERSHIP APPLICATION FORM
THE AMERICAN PHYSIOLOGICAL SOCIETY

Tphys4.00

Check membership category you are applying for:  ❑ Regular  ❑ Affiliate  ❑ Student

Do you currently hold membership in the APS?  ❑ Yes  ❑ No

If you answered yes to above, what is your category of Membership?____________________________ Year elected?____________________________

Name of Applicant: ____________________________________________

Date of Birth __________________________________________________

Optional: Male ❑  Female ❑

Institution Name_____________________________________________

Institution Street Address________________________________________

City/State/Zip/Country___________________________________________

Phone________________________________________ Fax________________

E-mail_______________________________________________________

EDUCATIONAL STATUS *(Important: if you are enrolled as a student, include the degree and pending date of completion)

Dates* Degree* Institution Major Field Advisor

EDUCATIONAL STATUS *(Important: if you are enrolled as a student, include the degree and pending date of completion)

Dates* Degree* Institution Major Field Advisor

DOCTORAL DISSERTATION TITLE (if applicable):__________________________________________________________

POSTDOCTORAL RESEARCH TOPIC (if applicable):________________________________________________________

SPONSORS (Sponsors must be APS Members. If you are unable to find sponsors, mail or fax this form to the address on the back of this form and we will locate them for you.)

Check this box if applicable:  ❑ Please locate sponsors on my behalf.

#1 Sponsor Name___________________________________ Mailing Address___________________________________

__________________________________________________

Phone________________________________ Fax________________________________

E-mail________________________________ Sponsor Signature*____________________________

#2 Sponsor Name___________________________________ Mailing Address___________________________________

__________________________________________________

Phone________________________________ Fax________________________________

E-mail________________________________ Sponsor Signature*____________________________

*signature indicates that sponsor attests applicant is qualified for membership.

Please turn over for 2 more questions...and mailing instructions.
Membership Application (Continued...) Applicant Last Name (please print)

OCCUPATIONAL HISTORY [ Check if student ☐ ]

Current Position:

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<th>Supervisor</th>
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Prior Positions:

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<th>Supervisor</th>
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LIST YOUR PUBLICATIONS FROM THE PAST 5 YEARS (List them in the same style as sample below).

IMPORTANT INFORMATION:
Do not include a curriculum vitae or reprints.

Mail your application to: Membership Services Department, The American Physiological Society
9650 Rockville Pike, Bethesda, Maryland 20814-3991 (U.S.A.)

Send no money now: You will receive a dues statement upon approval of membership.

Approval Deadlines: Regular membership applications are considered for approval by the Council three times per year. Student and Affiliate membership applications are accepted monthly upon approval of the Executive Director of the Society.

Questions? Call: 301-530-7171 • Fax: 301-571-8313 • E-mail: members@aps.faseb.org • Web: www.faseb.org/aps
Scientific Meetings and Conferences

April 3-4

April 3-8
21st Annual Gravitational Physiology Meeting of the International Society for Gravitational Physiology, Nagoya, Japan. Information: Tadaaki Mano, MD, PhD, Dept. of Autonomic Neuroscience, Research Institute of Environmental Medicine, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-8601, Japan. Tel: +81-52-789-3881; fax: +81-52-789-3885; email: mano@riem.nagoya-u.ac.jp; Internet: http://www.isgp.org.

April 5-8
American College of Sports Medicine Health and Fitness Summit and Exposition, San Diego, CA. Information: Gail N. Hunt or Amy Trobec, Public Information Department, American College of Sports Medicine, PO Box 1440, Indianapolis, IN 46206-1440. Tel: 317-637-9200; fax: 317-634-7817; email: atrobec@acsm.org.

April 10-11

April 30-May 5

May 11-13
Conquering Lymphatic Disease: Setting the Research Agenda, Bethesda, MD. Information: Marlys Witte, MD, Department of Surgery (G&S&T), University of Arizona, PO Box 245063, Tucson, AZ 85724-5063. Tel: 520-626-6118; fax: 520-626-0822; email: lymph@u.arizona.edu.

May 12

May 13-16

May 15-26
International Course on Laboratory Animal Science, Utrecht, The Netherlands. Information: Prof. dr. L.F.M. van Zutphen or Mr. Stephan van Meulebrouck, Department of Laboratory Animal Science, Faculty of Veterinary Medicine, PO Box 80.166, 3508 TD Utrecht, The Netherlands. Tel: +31-30-2532033; fax: +31-30-2537997; email: pdk@las.vet.uu.nl.

May 18-20
The Developing Heart, Prague, Czech Republic. Information: Czech Medical Association, J. E. Purkyne, Sokolska 31, 120 26 Prague 2, Czech Republic. Tel: +420-2-297271, 2491 3308; fax: +420-2-294610, 2421 6836; email: senderova@cls.cz.

May 25-29

June 4-7
11th International Conference on the Biochemistry of Exercise—Molecular Aspects of Physical Activity and Aging, Little Rock, AR. Information: William J. Evans, PhD, 11th International Conference on the Biochemistry of Exercise, University of Arkansas for Medical Sciences, Office of Continuing Education, 4301 West Markham Slot 525, Little Rock, AR 72205. Email: evanswilliamj@exchange.uams.edu; Internet: http://www.uams.edu/biochem2000/.

June 5-8
Critical Issues in Tumor Microcirculation, Aniogenesis and Metasis: Biological Significance and Clinical Relevance (15th Annual Course Offering), Boston, MA. Information: Carol Lyons, Administrator, Radiation Oncology, Massachusetts General Hospital, Boston, MA 02114. Tel: 617-726-4083; fax: 617-726-4172.