THE AMERICAN PHYSIOLOGICAL SOCIETY

Founded in 1887 for the purpose of promoting the increase of physiological knowledge and its utilization.

Publications

American Journal of Physiology: Cell Physiology
American Journal of Physiology: Endocrinology, Metabolism and Gastrointestinal Physiology
American Journal of Physiology: Heart and Circulatory Physiology
American Journal of Physiology: Regulatory, Integrative and Comparative Physiology
American Journal of Physiology: Renal, Fluid and Electrolyte Physiology
American Journal of Physiology (Consolidated)
Journal of Applied Physiology: Respiratory, Environmental and Exercise Physiology
Journal of Neurophysiology
Physiological Reviews
The Physiologist
Handbooks of Physiology
The Physiology Teacher

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The Physiologist

A Publication for Physiologists and Physiology
Orr E. Reynolds, Editor

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Please Note: Society Business and Notices are on gray-edged paper.

CURRENT SCHEDULE OF FUTURE MEETINGS

1978 Spring – Atlantic City, New Jersey – April 9-14
1978 Fall – St. Louis, Missouri – October 22-27
1979 Spring – Dallas, Texas – April 6-10 (Total FASEB meeting 1-10)
1979 Fall – New Orleans, Louisiana – October 14-19
1980 Spring – Anaheim, California – April 13-18
1980 Fall – Toronto, Canada – October 12-17
1981 Spring – Atlanta, Georgia – April 12-17
1981 Fall – Boston, Massachusetts – November 1-6
1982 Spring – New Orleans, Louisiana – April 18-23
1982 Fall – San Diego, California – October 10-15

CONSTITUTION AND BYLAWS
(Adopted April 1953, as amended April 1977)

CONSTITUTION

ARTICLE I. *Name*

The name of this organization is THE AMERICAN PHYSIOLOGICAL SOCIETY.

ARTICLE II. *Purpose*

The purpose of the Society is to promote the increase of physiological knowledge and its utilization.

BYLAWS

ARTICLE I. *Principal Office*

SECTION 1. The Society shall have its principal place of business at 9650 Rockville Pike, Bethesda, Maryland 20014. The Central Office shall house all activities delegated to the employees of the Society.

ARTICLE II. *Corporate Seal*

SECTION 1. The corporate seal of the Society shall be a circle surrounded by the words, THE AMERICAN PHYSIOLOGICAL SOCIETY. The seal shall also show the founding date and the date and place of incorporation.

SECTION 2. The Executive Secretary-Treasurer shall have custody of the seal. It shall be used on all official documents requiring it, and shall be placed on the documents by the Executive Secretary-Treasurer upon approval by Council.

ARTICLE III. *Membership*

SECTION 1. The Society shall consist of regular members, corresponding members, honorary members, associate members, retired members, student members, and sustaining associates.

SECTION 2. *Regular Members.* Any person who has conducted and published meritorious original research in physiology, who is presently engaged in physiological work, and who is a resident of North America shall be eligible for proposal for regular membership in the Society.

SECTION 3. *Corresponding Members.* Any person who has conducted and published meritorious research in physiology, who is presently engaged in physiological work and who resides outside of North America shall be eligible for proposal for corresponding membership in the Society.

SECTION 4. *Honorary Members.* Distinguished scientists of any country who have contributed to the advance of physiology shall be eligible for proposal as honorary members of the Society.

SECTION 5. *Associate Members.* Persons who are engaged in research in physiology or related fields and/or teaching physiology shall be eligible for proposal for associate membership in the Society provided they are residents of North America. Associate members may later be proposed for regular *membership.*

SECTION 6. *Retired Members.* A regular member or associate member, who has reached the age of sixty-five (65) years and/or is retired from regular employment may, upon application to Council, be granted retired member status.

SECTION 7. *Student Members.* Graduate students in physiology who have completed their preliminary examinations for the doctoral degree provided they are residents of North America. No individual may remain in this category for more than five years.

SECTION 8. *Sustaining Associates.* Individuals and organizations who have an interest in the advancement of biological investigation may be invited by the President, with approval of Council, to become sustaining associates.

SECTION 9. *Nominations for Membership.* Two regular members of the Society must join in proposing a person for regular membership, corresponding membership, honorary membership, associate membership, or student membership, in writing and on forms provided by the Executive Secretary-Treasurer. In the nomination of corresponding members, a corresponding or honorary member of the Society may substitute for one of the regular members in proposing a person for corresponding membership. The Membership Committee shall investigate their qualifications and recommend nominations to Council. Council shall nominate members for election at the Spring and Fall meetings of the Society. A list of nominees shall be posted for consideration by the members attending the meeting two days prior to the Business Meeting at which the election occurs.

SECTION 10. *Election of Members.* Election of regular members, corresponding members, honorary members, associate members, and student members shall be by secret ballot at Spring and Fall Business Meetings of the Society. A two-thirds majority vote of the members present and voting shall be necessary for election.

SECTION 11. *Voting.* Only regular members shall be voting members. Corresponding, honorary, associate, and retired members shall have the privilege of attending Business Meetings of the Society but shall have no vote.

ARTICLE IV. *Officers*

SECTION 1. *Council.* The management of the Society shall be vested in a Council consisting of the President, the President-Elect, the immediate Past-President, and four other regular members. The terms of the President and of President-Elect shall be one year. The terms of the four additional Councillors shall be four years each and they shall not be eligible for immediate reelection except those who have served for two years or less in filling interim vacancies.

A quorum for conducting official business of the Society shall be five of the seven elected members of Council.

The Chairman of the Publications Committee, the Chairman of the Finance Committee, and the Executive Secretary-Treasurer are ex officio members of the Council without vote. The Council may fill any interim vacancies in its membership. Council shall appoint members to all committees.

SECTION 2. *President.* A person shall serve only one term as President, except that if the President-Elect becomes President after September 30 he shall continue as President for the year beginning the next July 1. The President shall chair all sessions of the Council and Business Meetings of the Society and shall be an ex officio member of all Committees without vote.

SECTION 3. *President-Elect.* The President-Elect shall serve as Vice-President of the Society and as official secretary of the Council. Should he have to function as President prematurely, the Council shall select from among its own members an official secretary.

SECTION 4. *Election of Officers.* Nominations for President-Elect and for members of Council will be made by mail

ballot on forms provided by the Executive Secretary-Treasurer, before February 1 of each year. Each member may nominate no more than one candidate for each office. If a member wishes to nominate a certain person for President-Elect and for Council he must nominate that individual for each position. The ten candidates that receive the highest number of nominating votes will appear on the appropriate ballot for President-Elect or for Council.

Election of the President-Elect and members of Council will be made by mail ballot on forms provided by the Executive Secretary-Treasurer, prior to April 1 of each year. Each voting member must indicate on the ballot his rank preference for all of the candidates on each ballot. The ballots will be counted according to the Election Plan. Two ballots, one for President-Elect and one for Council will be mailed together. The results of the election will be announced at the Spring Meeting of the Society and the newly elected officers will take office on July 1 following their election.

SECTION 5. *Executive Secretary-Treasurer.* The Council shall be empowered to appoint and compensate an Executive Secretary-Treasurer who shall assist it in carrying on the functions of the Society including the receipt and disbursement of funds under the direction of the Council. He shall be responsible for management of the Central Office of the Society under general supervision of the Council.

ARTICLE V. *Standing Committees*

SECTION 1. *Publications Committee.* A Publications Committee composed of three regular members of the Society appointed by Council shall be responsible for the management of all of the publications of the Society. The term of each member on the Publications Committee shall be three years; a member may not serve more than two consecutive terms. The Council shall designate the Chairman of the Committee who shall be an ex officio member of the Council, without vote. Council is empowered to appoint and compensate a Publications Manager who shall assist in carrying out the functions of the Publications Committee under the supervision of the Executive Secretary-Treasurer. The President, Executive Secretary-Treasurer and the Publications Manager shall be ex officio members of the Publications Committee, without vote. The Committee shall have the power to appoint editorial boards for the Society's publications. The Committee shall present an annual report on publications and policies to the Council for approval and present an annual budget coordinated through the Executive Secretary-Treasurer, to the Finance Committee for its approval and recommendation to Council.

SECTION 2. *Finance Committee.* A Finance Committee, composed of three regular members of the Society appointed by Council, shall receive the total coordinated budget proposals annually from the Executive Secretary-Treasurer and shall determine the annual budgets, reserve funds and investments of the Society, subject to approval by Council. The term of each member of the Finance Committee shall be three years; a member may not serve more than two consecutive terms. The Council shall designate the Chairman of the Committee who shall be an ex officio member of the Council, without vote. Council is empowered to appoint and compensate a Business Manager who shall assist in carrying out the functions of the Finance Committee under the supervision of the Executive Secretary-Treasurer. The President-Elect, Executive Secretary-Treasurer, the Chairman of the Publications Committee, and the Business Manager shall be ex officio members of the Finance Committee, without vote.

SECTION 3. *Membership Committee.* A Membership Committee, composed of six or more regular members of the Society appointed by Council, shall receive and review processed applications for membership and make recommendations for nomination to the Council. The term of each member of the Membership Committee shall be three years; a member shall not be eligible for immediate reappointment. The Chairman of the Committee shall be designated by the Council.

SECTION 4. *Education Committee.* An Education Committee, composed of five or more regular members of the Society and representatives of such other societies as may be designated by the Council appointed by Council, shall conduct such educational, teaching and recruitment programs as may be required or deemed advisable. The term of each member of the Education Committee shall be three years. The Chairman of the Committee shall be designated by the Council. The Executive Secretary-Treasurer may act as Executive Director of the educational programs with approval of the Council. The Committee shall present an annual report to the Council and an annual budget through the Executive Secretary-Treasurer to the Finance Committee for its approval.

SECTION 5. The Council may appoint such special and other standing committees as it deems necessary or that are voted by the Society. The Council may name regular members of the Society as representatives to other organizations whenever it deems such action desirable.

SECTION 6. *Term of Office of Chairman.* The Chairman of a standing committee may serve one full term in that capacity in addition to any consecutive term as a committee member limited by other provisions of these Bylaws.

ARTICLE VI. *Dues*

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

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

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

ARTICLE VII. *Financial*

SECTION 1. *Society Operating Fund.* The Society Operating Fund shall consist of all funds, other than Publication Operating Funds and Publication Contingency and Reserve Funds, restricted or unrestricted, uninvested or invested, short or long term. The Executive Secretary-Treasurer shall be the responsible agent to the Council with signatory powers. Signatory powers may be delegated to the Business Manager by the Executive Secretary-Treasurer.

SECTION 2. *Publications Operating Fund.* The Publications Operating Fund shall consist of all funds that involve receipts, expenses, short-term investments relating to the

annual receipts, disbursements and continuing operation of the Society's publications. The Executive Secretary-Treasurer shall be the responsible agent to the Council with signatory powers. Signatory powers may be delegated to the Publications Manager and/or the Business Manager by the Executive Secretary-Treasurer.

SECTION 3. *Publications Contingency and Reserve Fund.* The Publications Contingency and Reserve Fund shall consist of the long-term capital investments of publication earnings. The Executive Secretary-Treasurer, with advice from the Finance Committee, shall have discretionary and signatory powers, except for withdrawals. Authority for any withdrawal from this fund shall require the following five signatures: 1) The Chairman of the Publications Committee (Alternate, the senior member of the Committee); 2) The President of the Society (Alternate, the President-Elect); 3) The Executive Secretary-Treasurer (Alternate, the Publications Manager); 4) and 5) Any two members of Council. The Finance Committee shall not recommend to Council the expenditure of any of this capital fund for non-publication purposes without the consent of the Publications Committee. The Finance Committee shall be responsible for the separate investment of the reserve fund for publications; any capital gains from such investment shall accrue to the fund (capital losses will, however, reduce its value). Any dividends, interest or income, other than capital gains, from this invested fund may be used for emergency support of any of the activities of the Society, including publications, as determined annually by the Council but the primary goal shall be to increase the investment capital.

SECTION 4. *Fiscal Year.* The official fiscal year shall be from January 1 through December 31.

SECTION 5. *Audit.* All statements of net assets and related statements of income, expenditures and fund capital shall be audited annually by an independent auditing firm.

SECTION 6. *Bonding.* All persons having signatory powers for the funds of the Society shall be bonded.

ARTICLE VIII. *Publications*

SECTION 1. The official organs of the Society shall be the American Journal of Physiology, the Journal of Applied Physiology, Physiological Reviews, the Journal of Neurophysiology, The Physiologist, and such other publications as the Society may own. All publications shall be under the jurisdiction and management of the Publications Committee unless otherwise designated by the Council. The names of the journals and publications may be changed by the Council on recommendation from the Publications Committee and any publication may be dropped by Council on recommendation from the Publications Committee.

ARTICLE IX. *Meetings*

SECTION 1. *Spring Meeting.* A meeting of the Society for transacting business, electing officers and members, presenting communications, and related activities, shall ordinarily be held in the Spring of each year.

SECTION 2. *Fall Meeting.* A Fall meeting of the Society shall be held at a time and place determined by the Council for presenting communications, electing members, and for transacting business except for the election of officers and adoption of amendments to the Bylaws. Under exceptional circumstances Council may cancel such a meeting.

SECTION 3. *Special Meetings.* Special meetings of the Society or of the Council may be held at such times and places as the Council may determine.

SECTION 4. *Quorum.* At all Business Meetings of the Society fifty regular members shall constitute a quorum.

SECTION 5. *Parliamentary Authority.* The rules contained in Roberts Rules of Order, Revised, shall govern the conduct of the Business Meetings of the Society in all cases to which they are applicable and in which they are not inconsistent with the Bylaws or special rules of order of the Society.

ARTICLE X. *Society Affiliations*

SECTION 1. The Society shall maintain membership in such organizations as determined by Council.

ARTICLE XI. *Regulations*

SECTION 1. *General Prohibitions.* Notwithstanding any provision of the Constitution or Bylaws which might be susceptible to contrary interpretation:

a. The Society is organized and operated exclusively for scientific and educational purposes.
b. No part of the net earnings of the Society shall or may under any circumstances inure to the benefit of any member or individuals.
c. No substantial part of the activities of the Society shall consist of carrying on propaganda, or otherwise attempt to influence local, state or national legislation. (All activities of the Society shall be determinated by Council). The Society shall not participate in, or intervene in (including the publishing or distributing of statements) any campaign on behalf of any candidate for public office.
d. The Society shall not be organized or operated for profit.

SECTION 2. *Distribution on Dissolution.* Upon lawful dissolution of the Society and after payment of all just debts and obligations of the Society, Council shall distribute all remaining assets of the Society to one or more organizations selected by Council which have been approved by the United States Internal Revenue Service as organizations formed and dedicated to exempt purposes.

ARTICLE XII. *General*

SECTION 1. *Records.* All official records, archives and historical material shall be held in the Central Office in the custody of the Executive Secretary-Treasurer.

SECTION 2. *Procedures and Customs.* The Society shall maintain a current Operational Guide detailing the procedures and current customs of the Society operations as well as the duties and responsibilities of officers, committees, and major employees. The Operational Guide shall be maintained current by the Executive Secretary-Treasurer as determined by the Council.

ARTICLE XIII. *Amendments*

SECTION 1. *Presentation.* Amendments to these Bylaws may be proposed in writing, by any regular member, to Council at any time up to three months in advance of the Spring Meeting, or at a Business Meeting of the Society. Such proposed amendments must be presented in writing at the following Spring Business Meeting for action by the Society.

SECTION 2. *Adoption.* These Bylaws may be amended at any Spring Business Meeting of the Society by a two-thirds majority vote of the regular members present and voting.

MEMBERSHIP STATUS

Regular Members	4,156
Retired Members	279
Honorary	10
Associate	572
Retired Associate	3
Corresponding	5
Student	7
	5,032

SUSTAINING ASSOCIATES

Abbott Laboratories
Burroughs Wellcome Co.
CIBA Geigy Corp.
Grass Instrument Co.
Hoechst Pharmaceutical Co.
Hoffmann-La Roche, Inc.
Eli Lilly & Co.
Merck Sharp & Dohme Res. Labs.
Norwich Pharmacal Co.
Pfizer, Inc.
A. H. Robins Co., Inc.
Smith Kline & French Labs.
Warner-Lambert Research Inst.
Williams & Wilkins Co.
Wyeth Laboratories, Inc.

DEATHS REPORTED SINCE THE 1977 SPRING MEETING

Edgar D. Adrian (H) – 8-25-77 – Trinity College, Cambridge, England
Philip Bard – 4-5-77 – Ojai, California
H. L. Blumgart (R) – 3-21-77 – Harvard Med. Sch., Boston
Edward A. Boyden (R) – 10-27-76 – Univ. of Washington, Seattle
Sydney W. Britton (R) – 2-15-77 – Charlottesville, Virginia
Oliver Carrier, Jr. – 4-30-77 – Univ. of Texas Science Ctr., San Antonio
George C. Cotzias – 6-13-77 – Sloan-Kettering Cancer Ctr, New York
Gordon L. Farrell – 4-16-77 – Houston, Texas
M. G. F. Fuortes – 8-2-77 – NIH, Bethesda, Maryland
Harry Goldblatt – 1-1-77 – Mt. Sinai Hospital, Cleveland
Ernest Gutmann (H) – 8-6-77 – Czechoslovak Academy of Science, Prague
Archibald V. Hill (H) – 6-3-77 – Cambridge, England
J. F. McClendon (R) – 12-00-76 – Norristown, Pennsylvania
William Perl – 9-0-76 – New Jersey Med. Sch., Newark
Robert F. Pitts (R) – 6-6-77 – Gainesville, Florida
Gordon C. Ring (R) – 6-9-77 – Coral Gables, Florida
Leon H. Schneyer – 10-23-76 – Univ. of Alabama, Birmingham
Georges Ungar – 7-26-77 – Univ. of Tennessee Ctr. Health Sciences, Memphis
L. Sherman Watson (Associate) – 5-31-77 – Merck Inst. for Therapeutic Res., West Point, Pennsylvania

NEWLY ELECTED MEMBERS

The following, nominated by Council, were elected to membership in the Society at the Fall Meeting, 1977.

ARMETT-KIBEL, Christine J.: Dept. Biol., Univ. of Massachusetts, Boston
BANKS, Robert O.: Dept. Physiol., Univ. of Cincinnati
BANKS, William M.: Dept. Zool., Howard Univ., Washington, DC
BARNEA, Ayalla: Dept. OB/GYN, Univ. of Texas Health Sci. Ctr., Dallas
BARRETT, Ellen F.: Dept. Physiol. & Biophys., Univ. of Miami
BARRETT, John N.: Dept. Physiol. & Biophys., Univ. of Miami
BAUST, John G.: Dept. Biol., Univ. of Houston
BENNETT, Peter B.: Dept. Anesthesiol., Duke Univ. Med. Ctr., Durham
BERN, Howard A.: Zool. Dept., Univ. of California, Berkeley
BOELKINS, James N.: Southern Illinois Univ., Springfield
BOND, Judith S.: Dept. Biochem., Med. Coll. of Virginia, Richmond
BROMBERG, Philip A.: Pulmonary Dis. Div., Univ. of North Carolina, Chapel Hill
BROWN, Stephen C.: Dept. Biol. Sci., State Univ. of N.Y., Albany
BUSS, Daryl D.: Dept. Med., Coll. Vet. Med., Univ. of Florida, Gainesville
BYRNE, John H.: Dept. of Physiol., Univ. of Pittsburgh
CAMPBELL, Gary T.: Dept. Physiol. & Biophys., Univ. of Nebraska, Omaha
CAREW, Thomas E.: Dept. Med., Univ. of California, San Diego, La Jolla
CARLSEN, Richard C.: Dept. Human Physiol., Univ. of California, Davis
CASEY, Timothy M.: Dept. Environ. Physiol., Rutgers Univ., New Brunswick, NJ
CHAN, Samuel H.H.: Dept. Life Sci., Indiana State Univ., Terre Haute
CHARNEY, Alan N.: Chief, Nephrol. Sect., New York VA Hosp.
COE, Fredric L.: Renal Div., Michael Reese Med. Ctr., Chicago
COOPER, Cary W.: Dept. Pharmacol., Univ. of North Carolina, Chapel Hill
COSTANZO, Linda S.: Dept. Physiol., Cornell Univ. Med. Sch., New York
COX, Malcolm C.L.: Hosp., Univ. of Pennsylvania, Philadelphia
CROSS, Carroll E.: Sect. Pulmonary Med., Univ. of California, Davis
EHRHART, Ina C.: Dept. Physiol., Med. Coll. of Georgia, Augusta
ELHARRAR, Victor: Krannert Inst. Cardiol., Indianapolis, IN
EL-SHERIF, Nabil E.: VA Hosp., Miami, Florida
ETLINGER, Joseph D.: Dept. Anat & Cell Biol., State Univ. of N.Y., Brooklyn
FINE, Leon G.: Dept. Med., Univ. of Miami Sch. Med., Miami
FROMM, Paul O.: Dept. Physiol., Michigan State Univ., East Lansing
GEORGE, David T.: Phys. Sci. Div., US Army Med. Res., Frederick, MD
GEORGOPOULOS, A.P.: Dept. Physiol., Johns Hopkins Univ., Baltimore
GERENCSER, George A.: Dept. of Physiol., Univ. of Florida, Gainesville
GINSBERG, Myron D.: Dept. Neurol., Hosp. of Univ. of Pennsylvania, Philadelphia

GITELMAN, Hillel J.: Dept. of Med., Univ. of North Carolina, Chapel Hill
GOLDSTEIN, Marvin H.: Mt. Sinai Sch. Med., New York, NY
GRASSINO, Alejandro: Dept. Med., Univ. de Montreal, Hosp. Notre Dame, Montreal
GREEN, Jerry F.: Human Physiol., Univ. of California, Davis
GREENWALD, Gilbert S.: Dept. Physiol., Univ. of Kansas Med. Ctr., Kansas City
HALL, John E.: Dept. Physiol. & Biophys., Univ. Med. Ctr., Jackson, MS
HARRISON, Lura A.: Dept. Med., Duke Univ. Med. Ctr., Durham
HARTMAN, Arthur D.: Dept. Physiol., Louisiana State Univ. Med. Ctr., New Orleans
HILLYARD, Stanley D.: Dept. Biol., Univ. of Nevada, Las Vegas
HOFFMAN, William E.: VA Hosp., Iowa City
HOFMAN, Wendell F.: Dept. Physiol., Med. Coll. of Georgia, Augusta
HOLLANDER, Daniel: Dept. Med., Wayne State Univ., Detroit
HOLLOWAY, Lewis S.: Dept. Ortho. Surg., Texas Tech Sch. Med., Lubbock, TX
HOLZBACH, R. Thomas: GI Res. Unit, Cleveland Clinic Fndn., Cleveland
ISSEROFF, Hadar: Dept. Biol., SUCB, Buffalo
ITO, Cyril S.: Dept. Physiol. & Biophys., Univ. of Washington, Seattle
JANIS, Ronald A.: Physiol. Dept., Northwestern Univ. Med. Ctr., Chicago
JOHNSTON, Daniel: Dept. Neurol., Baylor Coll. Med., Houston
JOHNSTON, Paul A.: Renal Res. Lab., Boston
JUDY, William V.: Dept. Physiol., Indiana Univ. Med. Ctr., Indianapolis
KAO, Luke I.: Dept. Neurol., Johns Hopkins Med. Sch., Baltimore
KELLOGG, Thomas F.: Mississippi State Univ., Mississippi State, MS
KINNEY, Michael J.: US Public Health Service Hosp., Staten Island, NY
LEWIS, Robert A.: Corvallis Environ. Res. Lab., Corvallis, OR
LICHTENBERGER, L.M.: Dept. Physiol., Univ. of Texas Med. Sch., Houston
LOHMEIER, Thomas E.: Dept. Physiol. & Biophys., Univ. Med. Ctr., Jackson, MS
LUKOWIAK, Kenneth D.: Dept. Physiol., McGill Univ., Montreal, Canada
MAYROVITZ, Harvey N.: Dept. Physiol., Temple Univ., Philadelphia
McGUIGAN, Frank J.: Performance Res. Lab., University of Louisville
McMAHON, Brian R.: Dept. of Biol., Univ. of Calgary, Canada
McNABB, Roger A.: Biol. Dept., Virginia Polytech. Inst., Blacksburg
MILES, Philip R.: Dept. Physiol. & Biophys., WVU Med. Ctr., Morgantown
MILLER, Edward, Jr.: Dept. of Anesthesia, Univ. of Virginia, Charlottesville
MODELL, Harold I.: Dept. Physiol. & Biophys., Univ. of Washington, Seattle
MORRIS, Mary E.: McGill Univ., Montreal, Canada
NEWBALL, Harold H.: Dept. Med., Johns Hopkins Univ. Sch. Med., Baltimore
ORTS, Richard J.: Dept. Physiol. Sci., Oklahoma State Univ., Stillwater
OSBORNE, James W.: Radiation Res. Lab., Univ. of Iowa, Iowa City
OVERWEG, Norbert I.: Dept. Physiol.-Pharmacol., NYU Coll. Dentistry
PAGALA, Murali K.: Maimonides Med. Ctr., Brooklyn
POLLOCK, Michael L.: Dept. Med., Mount Sinai Med. Ctr., Milwaukee
PORTERFIELD, Susan P.: Dept. Physiol., Med. Coll. of Georgia, Augusta
PRIOR, David J.: Dept. Biol. Sci., Univ. of Kentucky, Lexington
PURKERSON, Mabel L.: Dept. Med., Washington Univ. Sch. Med., St. Louis
QUAMME, Gary A.: Strong Lab. for Med. Res., Vancouver, B.C., Canada
RALL, Jack A.: Dept. Physiol., Ohio State Univ., Columbus
REYNOLDS, William W.: Biology Dept., Pennsylvania State Univ., Wilkes-Barre
RHODE, Edward A.: Sch. Vet. Med., Univ. of California, Davis
ROBB, Richard A.: Dept. Physiol. & Biophysics, Mayo Fndn., Rochester, MN
ROSS, James N., Jr.: Dept. Physiol., Med. Coll. of Ohio, Toledo
RUH, Mary F.: Dept. Physiol., St. Louis Univ. Med. Sch., St. Louis, MO
RUIZ-CERETTI, Elena: Dept. Biophys., Univ. of Sherbrooke, Canada
RYAN, James P.. Dept. Physiol., Temple Univ. Sch. Med., Philadelphia
SEIDEL, Charles L.: Dept. Med., Baylor Coll. Med., Houston
SHERWIN, Joseph R.: Dept. Physiol., Thomas Jefferson Univ., Philadelphia
SILLMAN, Arnold J.: Dept. Animal Physiol., Univ. of California, Davis
SILVERTHORN, S.U.: Dept. Physiol., Med. Univ. of South Carolina, Charleston
SIMPSON, Lance L.: Dept. Pharmacol., Coll. P & S, Columbia Univ., NY
STINNETT, Henry O.: Dept. Physiol. & Pharmacol., Univ. of North Dakota, Grand Forks
THOMAS, Steven P.: Dept. Biol. Sci., Duquesne Univ., Pittsburgh
VANNUCCI, Robert C.: Dept. Pediat., Pennsylvania State Univ., Hershey
WALSH, John V.: Dept. Physiol., Univ. Massachusetts Med. Sch., Worcester
WEEMS, William A.: Dept. Physiol., Univ. of Texas Med. Sch., Houston
WEIDNER, William J.: Dept. Animal Physiol., Univ. of California, Davis
WELD, Francis M.: Dept. Med., Columbia Univ, Coll. P & S, NY
ZAR, Jerrold H.: Dept. Biol. Sci., Northern Illinois Univ., DeKalb

CORRESPONDING MEMBERS

APRIGLIANO, Octavio Q.: Rio De Janeiro, Brazil
CERRETELLI, Paolo: Dept. Physiol., State Univ. NY at Buffalo

CUMMING, Gordon: Midhurst Med. Res. Inst., West Sussex, England
ELEBUTE, Oyinade W.: Dept. Physiol., Univ. of Lagos, Lagos, Nigeria
HEIM, Tabor: Res. Inst., Hosp. for Sick Children, Toronto, Ont., Canada
HISADA, Mituhiko: Zool. Inst., Hokkaido Univ., Sapporo, Japan
HOLLAND, Robert A.B.: Sch. Physiol. & Pharmacol., Univ. South Wales, Australia
MACKNIGHT, Anthony D.: Dept. Physiol., Univ. of Otago Med. Sch., Dunedin, New Zealand
MAJCHERCZYK, Stanislaw: Dept. Physiol., Inst. Physiol. Sci., Warsaw Med. Acad., Warsaw, Poland
NAGEL, Wolfram: Dept. Physiol., Univ. of Munich, Germany
WIETH, Jens O.: Dept. Biophys., Panum Inst., Copenhagen, Denmark
ZADE-OPPEN, Martin A.M.: Dept. Physiol., Uppsala, Sweden

ASSOCIATE MEMBERS

BETTICE, John: Dept. Physiol., Case Western Univ., Cleveland
BLASINGHAM, Mary C.: Dept. Pharmacol., Univ. of Tennessee, Memphis
BLEDSOE, Stephen W.: Dept. Anesthesiol., Univ. of Washington, Seattle
BOOK, Steven A.: Radiobiol. Lab., Univ. of California, Davis
DAUBENSPECK, John A.: Dept. Physiol., Dartmouth Med. Sch., Hanover, NH
DUSSEAU, Jerry W.: Dept. Physiol. & Pharmacol., Bowman Gray Sch. Med., Winston-Salem, NC
EDDY, Lynne J.: Dept. Physiol., Univ. of South Alabama, Mobile
ELLERT, Martha S.: Sch. Med., Southern Illinois Univ., Carbondale
ERWIN, David N.: USAF Sch. Med., Radiation Sci., Div., San Antonio, TX
ESTAVILLO, Jaime A.: Dept. Basic Med. Ed., Southern Illinois Univ., Carbondale
EVELOFF, Jill L.: Mount Desert Island Biol. Lab., Salsbury Cove, ME
FERGUSON, Earl W.: Dept. Biochem., Uniformed Services Univ. Hlth. Sci., Bethesda, MD
FINCH, Virginia A.: Countway Lab., Harvard Univ., Bedford, MA
FLAIM, Kathryn E.: Dept. Physiol., Pennsylvania State Univ., Hershey
FORDYCE, Wayne E.: Biomed. Eng. Dept., Univ. Southern California, Los Angeles
FRIEDMAN, Mitchell: Div. Pulmonary Dis., Univ. of North Carolina, Chapel Hill
HOUSER, Steven R.: Physiol. Dept., Temple Univ. Sch. Med., Philadelphia
JACOBS, George: Goddard Space Flight Ctr., NASA, Greenbelt, MD
JONES, Raymond T.: Dept. Pathol., Univ. of Maryland, Baltimore
JURATSCH, Craig E.: Div. Cardiol., Harbor Gen. Hosp., Torrance, CA
LAI-FOOK, Stephen J.: Mayo Clinic and Fndn., Rochester, MN
LAUGHLIN, M. Harold: USAF Aerospace Med., Brooks AFB, TX
LEVITT, Janice H.: Dept. Physiol-Pharmacol., Bowman Gray Sch. Med., Winston-Salem, NC
LOEB, Jerod M.: Dept. Physiol., Loyola Univ. Stritch Sch. Med., Maywood, IL
LOPEZ, Genaro: Dept. Biol., Loyola Univ. of Chicago
LOTZ, William G.: Naval Aerospace Med. Res. Lab., Pensacola, FL
MARCUS, Daniel C.: Dept. OTO, Washington Univ. Sch. Med., St. Louis
MOFFETT, Stacia: Dept. Zool., Washington State Univ., Pullman, WA
MUELLER, Jean V.: Postdoctoral Fellow, Univ. of Southern California, Los Angeles
MURRAY, Paul A.: New England Reg. Primate Res. Ctr., Southboro, MA
PLISHKER, Gordon A.: Dept. Med., Univ. of North Carolina, Chapel Hill
PLOTH, David W.: Div. Nephrol., Univ. of Alabama Med. Ctr., Birmingham
POBER, Zalmon: Hampden Coll. of Pharmacy, Holyoke, MA
PORTER, Johnny R.: Dept. Physiol., Louisiana State Univ. Med. Ctr., New Orleans
REISER, Joseph: CV Inst. Hahnemann Med. Coll. & Hosp., Philadelphia
RUSSELL, James A.: Mayo Clinic, Rochester, MN
SANTAMORE, William P.: Jefferson Med. Coll., Philadelphia
SINCLAIR, Richard J.: Dept. Physiol., Texas Coll. Osteopathic Med., Denton
SLOOP, Charles H.: Dept. Physiol., Louisiana State Univ. Med. Ctr., New Orleans
STENROOS, Orrie O.: Biol. Dept., Lynchburg College, Lynchburg, VA
THRASHER, Terry N.: Dept. Physiol., Univ. of California, San Francisco
VAN DER ZEE, Hoyte: Dept. Physiol., Albany Med. Coll. of Union Univ., Albany, NY
WANG, Bin C.: Div. Exptl. Med., St. Luke's Hosp., Kansas City, MO
WHITWORTH, Neil S.: Dept. OB/GYN, Univ. of Mississippi Med. Ctr., Jackson
WOLFF, Ronald K.: Inhalation Toxicol. Res. Inst., Lovelace Fndn., Albuquerque
WONG, Patrick T.: Dept. Biol., City Hope Med. Ctr., Duarte, CA
ZOGG, Carl A.: Dept. Physiol. & Pharmacol., Univ. of North Dakota, Grand Forks

STUDENT MEMBERS

CURCIO, Lawrence N.: Dept. Zool. & Physiol., Rutgers Univ., Newark, NJ
KLITZMAN, Bruce M.: Dept. Physiol., Univ. of Virginia Med. Sch., Charlottesville
YEZIERSKI, Robert P.: Dept. Physiol. & Biophys., WVA Univ. Med. Ctr., Morgantown

TIME: 4:30 p.m. Thursday, October 13, 1977
PLACE: Diplomat Hotel, Hollywood Beach, Florida

I. *CALL TO ORDER*

The President, Dr. W. F. Ganong, opened the meeting with the announcement that three members of the Society had been awarded the Nobel Prize and it gave him a great personal pleasure to make the announcement since the awardees are in his own field of neuroendocrinology. By unanimous vote, it was directed that the Society write congratulatory letters to Drs. Rosalyn Yalow of the Veterans Administration Hospital, Bronx; Roger Guillemin, Salk Institute of San Diego; and Andrew Schally of the Veterans Administration Hospital, New Orleans.

II. *REPORT ON MEMBERSHIP*

The President-Elect, Dr. David Bohr reported on the membership status and deaths since the last meeting.

A. *Membership Status*

Dr. Bohr reported that the membership in the Society continues to grow and has just exceeded the 5,000 mark. In the last report, there were 4,983 members. Since then, there have been 24 retirements, 46 resignations, 12 deaths, and 279 new members. As of this report, there are 4,156 Regular members, 279 Retired members, 10 Honorary members, 572 Associate members, 3 Retired Associates, 5 Corresponding, and 7 Student members, for a total of 5,032 members.

B. *Deaths Reported Since Last Meeting*

Dr. Bohr read the names of those members whose deaths had been reported since the last meeting and asked the members to stand for a moment of silence in tribute to their memory.

III. *PRESIDENT'S MESSAGE*

After stating that the President's Message would be primarily a report on actions of Council, Dr. Ganong departed from tradition by encouraging comments and questions during the presentation.

President-Elect's Tour

As President-Elect, Dr. Ganong toured Canada. He visited a number of Physiology Departments and attended the Canadian Federation Meeting in Calgary. His reception was very warm, and the Canadians are interested in maintaining contacts they now have with the Society. A number of Canadian APS members expressed interest in serving on committees.

In addition, the Canadian Physiological Society President, Dr. Oliver P. J. Heroux suggested that CPS and APS jointly issue a statement on the importance of support for basic research. Dr. Ganong reported that he is working on such a document which he hopes to present in the future. Further, the Canadian Physiological Society expressed enthusiastic support for a joint Fall meeting with APS. Council is unanimously in favor and will propose that the Canadian Physiological Society meet with APS at its Fall Meeting in 1978 in St. Louis followed by another joint meeting in Canada in 1980.

Fall Meeting Format

Dr. Ganong reminded the members that it was decided to shift the regular Fall meeting from campus meetings in August to city meetings in October on alternate years. The first city meeting was held in San Francisco in 1975 with a campus meeting in Philadelphia in August 1976. Since the membership complained of confusion caused by alternating between August and October meetings, Council decided to play a five-year schedule of October meetings as a trial period. Hollywood Beach is the first city meeting of the five-year period. Dr. Ganong encouraged any member who has ideas or comments about city vs. campus meetings, or any other aspect of the Fall Meeting to make them known to him or other Council members.

Asking if the original objective of the Fall meeting had changed, one member expressed the position that it appears the Society is not large enough nor its members affluent enough to have two major hotel type meetings. He believed members have to make a choice between the two. The city meeting is too expensive and the campus was a relaxed and informal atmosphere. Dr. Ganong reiterated that the Fall city meeting is for a trial period and will definitely be evaluated.

In response to a question from the floor, Dr. Ganong stated that the Fall campus meeting was normally attended by approximately 800 - 1100 people. The attendance at both the San Francisco and Philadelphia meetings was 1,400 as compared with 930 in attendance at this meeting. Past experience has proven that when the International Physiological Congress is held during the same year, the Fall meeting is poorly attended.

A member urged that special attention be paid to the selection of the Fall meeting site so it is centrally located with respect to a large population of physiologists.

Dr. Ganong commented that of 1,500 votes cast in a mail referendum, 52% were in favor of a city meeting and 48% in favor of a campus meeting. A member responded that perhaps the membership is too critical of Council for initiating the Fall city meeting since Council is following the referendum of the membership. It might be wrong to have a referendum on certain issues when the entire membership is often not the active participants. Therefore, he proposed that all individuals listed as co-authors from a previous year's Fall meeting be petitioned for their suggestions. By a show of hands, the members present indicated they were heavily in favor of campus meetings.

Membership Dues

Dr. Ganong was pleased to inform the membership that Council, after some debate, unanimously agreed not to increase dues. In lieu of a dues increment, Council has decided to add a line on the dues bill for voluntary contributions with no stated amount. It will be left to the membership the size donation it wishes to make which will be applied toward operating expenses. If this does not work, Council will consider action related to increasing dues at some future meeting.

Action Items from the 117th Business Meeting

Dr. Ganong reported on the status of two items carried forward from the last Business Meeting: 1) The proposed abolishment of the secret ballot on the election of new members. It had been proposed from the floor that the secret ballotting process be eliminated and new members be voted upon by voice vote. Council feels it is of importance to the membership to have the right to vote in secret, and consequently, Council has made no recommendation to change the procedure.

2) A proposal to broaden the Student Membership category was reviewed by Council. The Membership Advisory Committee has been asked to deliberate this item and submit a recommendation at the Spring Meeting. Attention will be given to broadening this category to consider people who are other than Ph.D. candidates in physiology and other related problems. The availability of Student membership is not widely known and Dr. Ganong urged members to publicize it among their graduate students.

Specialty Group Sectionalization

Council has encouraged specialty groups to organize within the Society, and it was with pleasure that Dr. Ganong announced Council's approval of Statements of Organization and Procedures for a Section on Comparative Physiology and an Environmental, Thermal, and Exercise Physiology Section of the American Physiological Society. It was felt that the establishment of sections is most logical and that the Society represents an important umbrella under which these small groups can interact at the APS meetings (pp. 14 and 15).

APS Endowment Fund

An important matter relative to good will toward the Society, is the fact that some people have made donations, such as the Perkins Memorial Fund. The Society has received a bequest of $113,000 from the estate of Caroline tum-Suden for general purposes. The Bowditch Lectureship and the Ray Daggs Award are being granted through this latter bequest with the remaining funds used for general purposes. The two existing funds will become part of a newly established Endowment Fund. Contributions to the new Endowment Fund would be welcome at any time. It was suggested that donations to the Endowment Fund would be an excellent way to memorialize an individual, and APS will place a plaque in the headquarters honoring the person. An announcement of the Endowment Fund appears in *The Physiologist* (p. 12).

Public Affairs

Dr. Ganong's last item of concern to the membership was the Public Affairs program. The APS has its own Public Affairs Committee and is also represented in the public arena through FASEB's Public Affairs Office, the American Institute of Biological Sciences which is active in attempting to have the views of scientists heard on Capitol Hill, and the American Association of Medical Colleges where APS has representatives in the Council of Academic Societies. At the other end of the spectrum, there are many specialty groups, such as the Endocrine and Neuroscience Societies, that have mounted campaigns in specific areas. The APS, on the other hand, has broad interests, and it is difficult to speak with any great strength in all areas at once. Therefore, the Society plans to: 1) continue active participation through its Public Affairs Committee with Dr. Brian Curtis as Chairman. Council has authorized a budget for this program and approved the appointment of Dr. Lloyd Faulkner to the Public Affairs Committee. He is a former FASEB Congressional Fellow from Colorado State University who knows his way around on the Hill. 2) APS will publicize the importance of the support of basic vs applied research. As noted earlier, the Society will issue a joint statement with the Canadian Physiological Society in support of basic research. 3) Dr. Ganong will meet with a variety of specialty societies to work with them in selected areas in an attempt to stimulate training and funding of basic research.

Education Program

In response to a question from the floor concerning the relationship between APS and the agent for the audiovisual program, Dr. Ganong stated that Herlitz Company, the agent, manufactures and markets the audiovisual slide tapes which are developed by the Society. Both Herlitz and APS receive 25% each from gross sales, and the remainder covers the cost of manufacture and marketing. When the program was instituted, it was decided to carefully review it in three years, and Council will conduct such a review at the Spring Meeting.

IV. *ELECTION OF NEW MEMBERS*

A. *Appointment of Tellers*

Dr. Ganong appointed Drs. Leonard Share, James Filkins, Tom Saba and Lois Heller as Tellers and requested they collect the Ballots for Election of New Members that were distributed earlier.

B. *Election of New Members*

Dr. Ganong announced that 65 ballots were cast, and all nominees on the ballot were elected.

V. *COMMITTEE REPORTS*

A. *Membership*

Dr. Beverly Bishop publicly thanked the Committee (Elizabeth W. Stephenson, Gilbert A. Castro, Jerry B. Scott, Mary F. Dallman, and John S. Cook) for their work. They reviewed, and individually scored, 175 applications and 350 letters from sponsors. Dr. Bishop stated that Membership Committee recommendations to Council are not rubber stamped. In fact, after replowing much of the same ground, Council overturned only eight of the Committee's recommendations. The new single application form for all categories of membership has been a success since it provides all the required information saving a great deal of time. Dr. Bishop called upon sponsoring members to carefully read the guideline prior to recommending a candidate to be certain the individual is eligible for the category for which he/she is being nominated. Even though the word "Associate" has been retained, Dr. Bishop stated that the Associate Member now has the same duties and privileges as Regular members except holding office, sponsoring new members and voting. This category is for colleagues in related areas and teachers who wish to participate in Society affairs. Also, it is for the young physiologist who has not yet developed independence in research. The new Associate Membership is a real step forward, and it needs publicity. As described in the Bylaws, Dr. Bishop feels that Student Membership is too restrictive. The Society wants to attract young people who plan physiology as a career, the medical student, the graduate student, etc. There are many advantages for the Student Members. They may purchase publications at member rates, present papers at the Fall meeting with endorsement of their research advisers, register to attend scientific meetings of FASEB and APS at student rates, etc. Dr. Bishop urged that although there is concern about the present Bylaws, members should encourage their students to apply for Student Membership. In conclusion, Dr. Bishop welcomed suggestions for a better definition of Student Member.

B. *Finance*

In the absence of Dr. Arthur Guyton, Chairman of the Finance Committee, Dr. Ganong asked Dr. David Bohr to present the report of the Committee.

Dr. Bohr reported that members of the Committee (Arthur Guyton, Dan Tosteson, Ernst Knobil, and himself as ex officio member) met in September. In presenting an overview, he indicated that the estimated operating expenditures for 1978 are approximately 2.0 million dollars with an estimated income of 1.85 million dollars leaving a deficit of approximately $150,000. This covers both the Publications Operating Fund ($142,000 deficit) and the Society Operating Fund ($8,000 deficit). Recommendations of the Finance Committee are aimed at correcting the deficit. With respect to publications, most if not all of this deficit is covered by excess income from subscriptions in 1977 resulting from increased subscription rates in that year. With respect to the deficit in Society Operating Fund, it was recommended that Council review Society programs for cost effectiveness (such as the Education Office) to determine where funds might be saved. Another recommendation – to increase membership dues – was not accepted by Council. Instead, Council agreed to add a line on the dues bill soliciting voluntary contributions.

The Committee also suggested that Council discuss the importance of maintaining a specific level of Society reserve funds. Some years ago, the Finance Committee and Council established a principle that reserve funds be maintained equal to approximately one year's operating expenses. With the initiation of new programs and inflation, this has not been feasible in recent years. Therefore, it was recommended that after review, Council might set a more realistic goal for maintenance of reserve funds. Finally, the Finance Committee suggested the creation of an APS Endowment Fund with provision for specific memorial gifts.

After a member suggested initiating a corporate membership category to help build revenue, Dr. Ganong stated that the Society has a category called "Sustaining Associate" where a small group of industrial organizations make contributions to support APS.

Another member asked about the relationship between the Society and FASEB and whether it is operating at a financial disadvantage. Dr. Ganong answered that there has been a major change in the formula for payment of the Federation assessment. Each society is assessed on a per member basis for services provided to the Society. In the future, net income from the annual Spring Meeting will be distributed to only those Federation societies actually participating in the meeting. For example, the net income from the Spring meeting will be shared by four rather than six societies.

In answering a question from the floor about the nature of the 1.5 million dollar investment fund and who has the responsibility for the management of the portfolio, Dr. Reynolds stated that the Finance Committee has some responsibility, and he, as Treasurer, has some. For many years the major part of the investment fund account has been with Woods Struthers & Winthrop. A year ago, $350,000 was placed with Prescott, Ball and Turben in order to make a comparison of performance. The Finance Committee continues to watch the performance of the two investment advisers and will move funds around as better opportunities arise.

C. *Program*

Dr. Franklyn Knox announced that the Society 1978 Fall Meeting will be held at the Chase Park Plaza in St. Louis, Missouri, October 22-27.

Dr. Knox reported that as a result of reorganization of the Program Committee last year, there is a Program Executive Committee which is responsible for the operations of the Program Advisory Committee and for the generation of scientific programs of the Society. To get broad input from the membership, the Program Advisory Committee consists of members representing special interest groups within the Society. The Program Executive Committee includes Dr. H. M. Goodman as Chairman, Dr. M. J. Fregly and Dr. Knox. Dr. Fregly has special responsibility for the refresher courses and tutorial sessions which are coordinated with the Education Committee. The following individuals who make up the Program Advisory Committee should be the contact for members wishing to make suggestions for program and symposia topics: David Carpenter (Neurophysiology), S. D. Gray (Circulatory Physiology), S. I. Helman (Membranes and Transport), L. R. Johnson (G. I. Physiology), A. E. Kammer (Comparative Physiology), J. W. Manning (Neural Control of Circulation), X. J. Musacchia (Environmental Physiology), L. P. Sullivan (Renal Physiology), M. J. Kushmerick (Muscle Physiology), Joseph Meites (Neuroendocrinology) and N. C. Staub (Respiratory Physiology).

Symposia planned for the Spring Meeting will include three sessions on pulmonary edema which will be complemented by two additional coordinated symposia in circulatory shock and neurocontrol systems. Other symposia are fever and hyperthermia, growth hormones, water transport across epithelial structure, and G. I. motility. The Program Advisory Committee would very much appreciate input from the membership concerning suggestions for future symposia, refresher courses, and tutorials.

In response to a question about scheduling conflicts, Dr. Knox indicated that the Committee tries to avoid conflict wherever possible. Each Program Advisory Committee member sorts the abstracts in a particular area, he attempts to avoid conflict but this is not always possible.

Another member suggested that when inviting a special symposium speaker, it should be a policy that the speaker participate in other society functions during the week. This would allow participants an opportunity to benefit from the individual's expertise.

D. *Committee on Committees*

Dr. Earl Wood reported that his committee is relatively new and its charge is to find suitable persons for the many committees and make preliminary recommendations to Council. Another charge is to attempt to increase representation from the various special interest groups on committees. There are 25 committees and 20 vacancies to be filled. He plans to circulate a letter to all physiology departments in North America seeking nominations for these committees. Most of the Committee's work will be conducted by mail with submission of recommendations to Council at its Spring Meeting. Dr. Wood suggested that members wishing to serve on a committee please contact him, and also to send him names of vigorous young people willing to serve. Dr. Ganong further emphasized the importance of involving young people in Society affairs because the future of the Society depends on their involvement.

There being no further business, the meeting was adjourned at 5:45 p.m., October 13, 1977.

David Bohr, President-Elect

A REPORT FROM THE FINANCE COMMITTEE

E. B. BROWN, JR.

In 1970 your Council asked the Finance Committee to prepare a report for the membership showing the financial position of the Society by taking a longitudinal look over the previous decade. Dr. John Brookhart, who was Chairman of the Committee at that time, prepared the report which appeared in the May, 1970 issue of *The Physiologist* (Brookhart, J.M., Dollars over the Decade, *The Physiologist* 13:60, 1970). Dr. Brookhart's report covered the years from 1960 through 1969. The purpose of this report is to bring the record up to date by covering the years from 1970 through 1976. In some of the graphs, values from 1969 have been included to tie the data to the previous report. As you are aware, an annual financial report appears in this journal, but these year-end reports do not give a picture of the changes with time in the various funds handled by the Society.

The Bylaws of the Society identify and describe three funds: 1) Society Operating Fund, 2) Publications Operating Fund, and 3) Publications Contingency and Reserve Fund (Article VII, Sections 1, 2, and 3).

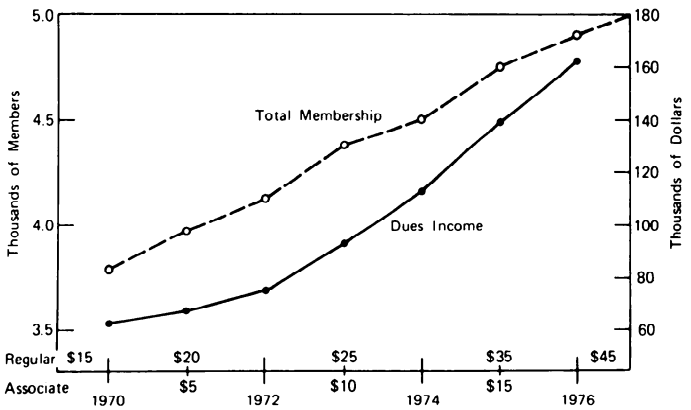

Fig. 1

The Society Operating Fund

This is the fund that takes care of the day to day operation of the Society office. Our dues go into this fund, and it is apparent in Figure 1 that while our membership (all categories) was increasing from 3758 in 1969 to 4899 in 1976 – an almost linear increase – dues income was increasing from $47,459 in 1969 to $162,323 in 1976. Over this period dues have tripled. These increases have been necessary to cover the rising cost of personnel and supplies, and the increased service to members. Figure 2 shows the total income and expenditures from the Society Operating Fund. Beginning in 1972 we had federal grants which supported the initiation of the project in production of slide-tape self teaching materials. Income from the grants, which terminated in 1977, is indicated on the graph and accounts for the somewhat bizarre appearance of these curves. The lower dashed line shows the growth in total income of this fund when grant income is excluded. In 1969 the total income was $77,656. By 1976 it had increased to $244,535 including $21,076 of grant funds.

During the period covered by this report an Education Office has been established and we have engaged in a major effort to produce slide-tape teaching materials in physiology. It is expected that this enterprise will be self supporting within three years. The Education Office is also responsible for producing *The Physiology Teacher* which is sent to members with *The Physiologist*.

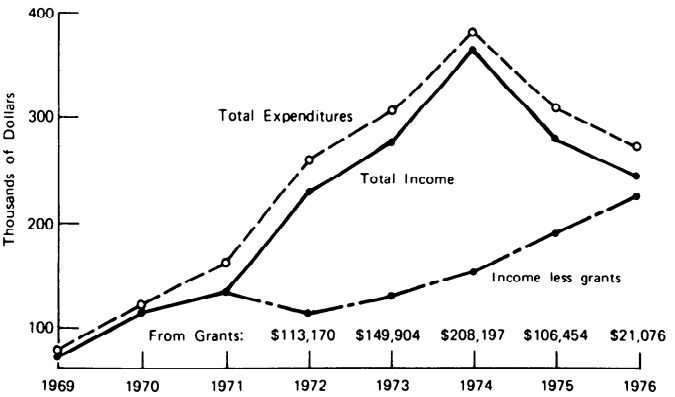

Fig. 2

The Publications Operating Fund

In terms of financial obligations the publishing operation of the Society is paramount. In 1976 the total income to this fund exceeded 1.6 million dollars. Subscription income was 1.2 million. The behavior of this fund from 1969 through 1976 is shown in Figure 3. Except for the years 1972 and 1973, income did not exceed expenses in this fund until last year. In 1976, with the increase in subscription rates, income substantially exceeded expenses. This cushion was necessary to cover the cost of conversion of the journals to the new format, and the unknown response in subscription to this change. It will take at least two years to get a clear picture of the financial impact of this major change in our journals.

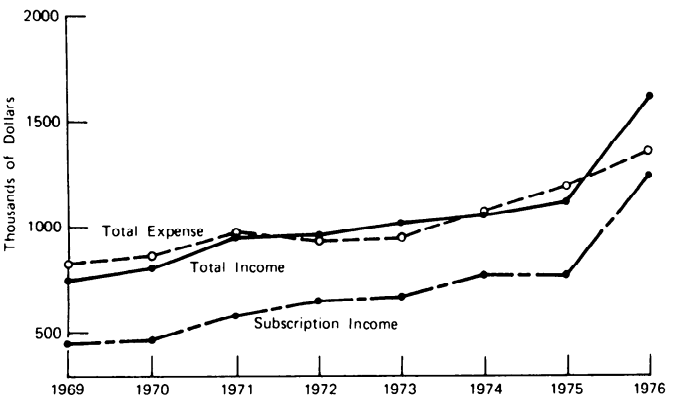

Fig. 3

In the previous article, Dr. Brookhart designated the working capital of this fund as the "cash float." Most of the income for this fund comes in over a short period of time while the expenditures take place continuously. The large balance that exists after subscriptions come in does not lie idle but is invested in short term certificates which terminate at the proper intervals to become available as required. Over the seven years of this report, this source of income has amounted to more than $200,000. In March of 1976 the Finance Committee, with the approval of Council, reduced the working balance or "cash float" by $300,000 and placed this in an investment portfolio with an investment firm as a Publications Operating Reserve Fund. This fund has now appreciated in value to $330,000.

The Publications Contingency & Reserve Fund

This fund was begun many years ago by the Board of Publication Trustees. It is recognized as a reserve to support the publications operation and to provide funds for initiation of new publication ventures. The fund consists of a portfolio of long term investments managed by an investment counseling firm for growth and income. Figure 4 shows the year-end value of this fund and the earnings from the fund.

In April, 1975 the Finance Committee recommended and Council approved the following guidelines:

"1. We should strive to have the value of this fund equal to 1.0 to 1.5 times the annual financial operation of the Society.
2. When the value is less than the annual budget the income should be reinvested.
3. When the value is greater than 1.5 times the annual budget the income should support new ventures in publications or communications by the Society."

In 1976 the budget of the Society Operating Fund plus the Publications Operating Fund was 1.65 million dollars. The sum of all of our reserve funds was less than this amount. Obviously the stock market has a major influence on the value of our reserve funds.

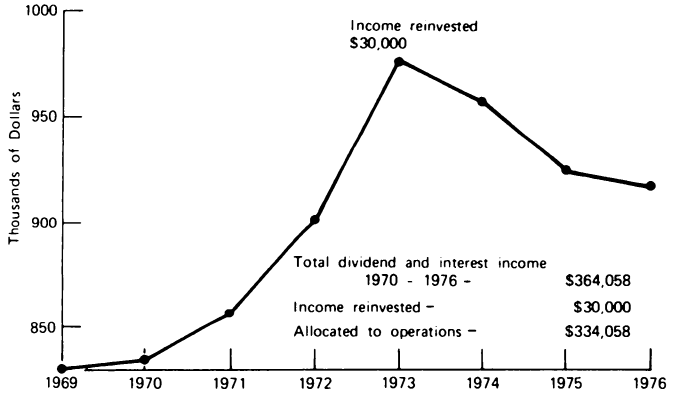

Fig. 4

The Handbooks of Physiology

Publication of the Handbooks is often praised as a very successful venture of our Society. As a service to physiologists and to biologists at large it has undoubtedly been highly successful. Financially it was always intended to be a break-even venture. Since publication of the first volume in 1959, 25 volumes have appeared. Total cost at the end of 1976 was $2,297,276 and total income was $2,112,504. The deficit of $184,772 is well within the $250,000 authorized by Council when the project began 20 years ago. The value of books on hand exceeds the deficit by 2 or 3 times and if publication were discontinued the current inventory would certainly more than bring the project into the plus side of the ledger.

It is interesting to contrast the price of Section 1: Neurophysiology, Vol. I @ $22 and Vol. II @ $20 issued in 1959 and 1960, with the price of the revised Vol. I which will be $135 for the two books comprising the volume. Recognizing the turbulent financial era of the two decades through which we have just passed, your Society is in remarkably good financial health.

NOBEL PRIZE

Three American scientists, all members of APS, won a Nobel prize for exploring the brain and showing how its powerful hormones govern the body.

The 1977 Nobel prize in physiology and medicine was awarded in Stockholm to Dr. Rosalyn Yalow of the Bronx Veterans Hospital in New York City, who will get half of the $145,000 prize, and Dr. Roger C. L. Guillemin of the Salk Institute in San Diego and Dr. Andrew Schally of the New Orleans Veterans Hospital, who will share the other half.

Dr. Yalow, a physicist and native of New York is the second woman to receive the medical prize and the third to win a Nobel award this year. She was honored for her discoveries about hormone production and how abnormalities cause disease. As an example, she helped doctors learn by using her RIA test that adult diabetics, unlike diabetic children, do not have an insulin deficiency in their bodies but have a still unexplained inability to use insulin to control their blood sugar level.

Drs. Guillemin and Schally showed that the pituitary gland at the brain's base – long called the body's "master gland" because its hormones or chemical secretions regulate hormone production or function in many organs – is not really master but is controlled by brain hormones. Specifically, these true master hormones are made in the hypothalamus, a kidney-bean-sized region of nerve cells also located at the base of the brain, though above the pea-sized pituitary.

The pituitary also controls the thyroid gland, which governs growth and metabolism. In 1969 the Guillemin team synthesized the peptide TRH (thyrotropic releasing hormone), which controls thyroid secretion. In 1970 Schally isolated and synthesized the related LH-RH (or LRH), which affects female ovulation or egg production. This new understanding, Guillemin said, could lead to ways to treat diabetes, infertility and mental disorders by adjusting body chemistry, as well as providing new chemical birth controls.

Dr. Guillemin was born in Dijon, France. Dr. Schally is a native of Wilno, Poland. Both are U.S. citizens, which helps maintain recent American domination of the science prizes. This is the third straight year the medicine prize has gone to Americans.

Dr. Ganong, President of the Society wrote to all three members to congratulate them on the recognition they so richly deserve.

NATIONAL MEDAL OF SCIENCE

On November 22, President Carter announced the winners of the National Medal of Science. The medal, established in 1959, is presented to individuals who are recognized for outstanding achievement in the sciences and in engineering.

APS member, *Roger Guillemin,* was one of the 15 recipients of the medal.

Dr. Guillemin was cited for: "Demonstrating the presence of a new class of hormones, made in the brain, that regulate the function of the pituitary gland, thereby making possible improved diagnosis and treatment of many endocrine disorders."

CONTRIBUTIONS TO THE AMERICAN PHYSIOLOGICAL SOCIETY

I am pleased to be able to announce that in her will, the late Dr. Caroline tum-Suden left a bequest of over $100,000 in unrestricted funds to our Society. One portion of this bequest will be used to support the Bowditch Lectureship, another portion to support the Daggs Award, and the remainder for general purposes. The tum-Suden contribution thus joins the Perkins Memorial Fund as a major bequest to the Society.

In order to facilitate management of endowment funds and make it easy for others to contribute, the Society has established the American Physiological Society Endowment Fund. A detailed description of this fund and the conditions of its operation are presented below. We want to encourage contributions to the Society at any time and in any amount. All are tax deductible. Contributions in honor of an individual and contributions for specific or general purposes can be identified in a suitable fashion if the donor wishes. Of course, the Society also welcomes anonymous donations and encourages bequests of all kinds to help it carry out its programs and achieve its goals.

A small annual contribution to general operating expenses is another potentially important form of giving. Our current dues of $50 per year represent a financial hardship to a significant portion of our members, and we do not wish to raise dues any further unless this becomes absolutely necessary. However, costs continue to rise. Therefore, we encourage all members who are able and willing to do so to include a voluntary contribution when they pay their annual dues.

William F. Ganong, President

THE AMERICAN PHYSIOLOGICAL SOCIETY ENDOWMENT FUND

The American Physiological Society Endowment Fund shall be governed by the following provisions:

1. The income and principal of the Fund shall be used, subject to any limitations applying to gifts included in the Fund, to

a. Support programs for the development of physiology and physiologists.

b. Encourage communication with other disciplines of science and the community at large.

c. Foster scientific and cultural relations with other parts of the world.

2. Contributions and bequests in any amount will be accepted by the Society for the general purposes of the Fund or with approval of Council for special purposes.

For contributions and bequests which have the purpose of honoring an individual, a plaque shall be installed at the headquarters of the Society stating the purposes of the Fund and bearing the name of each living or deceased physiologist or other individual in whose memory the Fund is maintained. Upon request, the Society will provide to a donor or institution contributing a memorial gift a replica of the plaque bearing the name of the individual living or deceased in whose honor the gift was made.

Substantial contributions will be accepted with the approval of the Council to be used for new programs specified by the donor, provided it does not appear that more than twice the income of the gift will be needed in order to carry out the program. The Council reserves the right to modify the program or use the gift for other purposes of the Fund if it determines that the program no longer serves a valuable purpose.

3. Initially the Endowment Fund shall comprise the bequest received from Caroline tum-Suden and the amount now held for the Perkins Memorial Fellowship program.

The Caroline tum-Suden bequest shall be used for the general purposes of the Fund and to meet the expenses of the following programs:

The Bowditch Lectureship

An outstanding physiologist under 40 years of age is identified each year by the President of the Society to present an honorary lecture on a subject of his choice at the Fall Meeting of the Society.

The Ray G. Daggs Award

An annual award presented to a physiologist who is judged to have provided distinguished service to the science of physiology and to the American Physiological Society.

The amount held for the Perkins Memorial Fellowship program shall be used in accordance with the following statement of its objectives:

The purpose of the program is to aid and encourage enterprises in physiology which have cultural as well as scientific merit as judged by Council. So far grants have been used to make it possible for a physiologist taking a temporary post or fellowship outside his home country to bring his family with him.

4. The respective amounts held for the general purposes of the Endowment Fund and for the Perkins Memorial Fellowship program shall be allotted shares in the Endowment Fund in proportion to the ratio between each such amount and the total value of all assets in the Endowment Fund including such amounts. Such value shall be determined as of January 1, 1978. Each subsequent contribution to the Endowment Fund, whether for its general purposes or for a specified purpose or program, shall likewise be allotted shares in the Endowment Fund on the basis of the ratio between such contribution and the total value of the Endowment Fund on the date such contribution is made.

5. The Council will assign responsibility to the Finance Committee of the Society to serve as an Endowment Fund Committee with the following duties and powers:

a. To recommend from time to time how income and principal held for the general purposes of the Fund shall be used, including a determination of how much thereof shall be added to amounts allotted to specific programs such as the Perkins Memorial Fellowship Program, the Ray G. Daggs Award, or the Bowditch Lectureship.

b. To make recommendations to the Council as to policies governing the use of the Fund, the value of existing programs, and the acceptance of gifts for new programs.

c. In conjunction with the Treasurer, to appoint an investment advisor for the Endowment Fund, to review periodically the performance of the investment advisor, and to change investment advisors if desirable.

6. The Council shall, when appropriate, appoint special purpose committees to determine the amounts and recipients of grants and fellowships, including those given in connection with the above-mentioned specific programs.

REPORT OF THE STEERING COMMITTEE
SECTION ON NEUROPHYSIOLOGY

The Neurophysiology Steering Committee met in Anaheim at the meeting of the Society of Neurosciences with Drs. Poulos, Manning, Edwards, Willis, Woolsey and Carpenter in attendance.

The principal item of business was a discussion of the proposed charter for the Section on Neurophysiology. A draft which had previously been circulated was amended in several important respects. This charter will be submitted to the APS for action by the Council at their next meeting in March. The Chairman and Vice-Chairman elected by the Steering Committee were David Carpenter and Bill Willis, respectively. In addition the Committee decided to include the representative of the Neural Control of Circulation (John Manning) and the Comparative Physiologists (Ann Kammer) as full members of the Neurophysiology Steering Committee. As indicated in the charter, review of representatives of other APS groups for membership in the Steering Committee will be made annually at the fall meeting of the Steering Committee.

With respect for plans for the spring FASEB meeting in Atlantic City, the following decisions were reached:

1. Six symposia are planned and more or less finalized. We will attempt to schedule these symposia on Monday, Tuesday and Wednesday without two running concurrently.
2. Insofar as possible, we will schedule all submitted abstracts and poster sessions for Monday, Tuesday and Wednesday, with attempts to avoid competition in subject material with the symposia which will be running concurrently.
3. We will not sponsor a dinner.
4. We will sponsor a cash bar to be set up Monday evening at 5:30 PM.
5. We will attempt to promote advertisement of the program through use of a mailing of the list of symposia to all members of the APS listing Neurophysiology as a primary or secondary interest (see Editor's note) and through the mailing of a poster advertising the symposia and other special events to be prepared and mailed to all departments of physiology and neurobiology just prior to the April meeting.

The next meeting of the Neurophysiology Steering Committee will be in Atlantic City during the Spring meeting, tentatively scheduled for Tuesday, April 11th at 5:30 PM at a place to be determined. We must make several decisions at that time including choice of six candidates for election to three vacating positions on the Steering Committee, choices of subjects and organizers for the symposia for the 1978 FASEB meeting as well as choices of at least two people to deliver 30 minute Chairman's introductory lectures. APS neurophysiologists are urged to submit suggestions to the Steering Committee.

Other suggestions were as follows:

1. To see if there is any possible way in the future to arrange for the fall APS meeting and the Society for Neuroscience meeting to be in the same place on consecutive weeks so as to facilitate participation of the neurophysiologists in both meetings.
2. It was suggested that the ballot mailed to all members each fall for election of members to the Steering Committee contain a place for suggestions of nominees for consideration in the next year's election.
3. It was suggested that a page of instructions for symposia organizers be prepared which outlines the procedures for solicitation of speakers, payment of speakers and publication of the proceedings. Such a sheet should also specifically suggest that the organizer meet with all participants the evening before the symposia and also indicate that it is not necessary to allot each speaker the same amount of time.
4. The suggestion was made and there was general consensus that it would be very valuable to have the discussion following at least some symposia published along with the proceedings.

David O. Carpenter, M.D.
Chairman
Neurobiology Steering Committee

Editor's Note:

APS is mailing information on the Neurophysiology Steering Committee activities to 775 members. Those APS members who are not receiving these mailings may be added to the distribution list by completing the "APS Membership Records Questionnaire" (sent out last Spring) indicating a primary or secondary interest in Special Interest Code 25, Neurophysiology. If you require another questionnaire, please write or call the APS office.

ROBERT F. PITTS PRIZE

The Robert F. Pitts Prize has been established by a generous gift of the late Robert F. Pitts, former Chairman of the Department of Physiology at Cornell University Medical College and Past President of the American Physiological Society. Two prizes are offered for research conducted by medical students in the Department of Physiology at Cornell University Medical College. An Award of $2,500 and $1,500 for First and Second Prize is thus made available each year. The selection of candidates shall be made on the basis of manuscripts submitted to an Awards Committee. This Committee consists of the Chairpersons of the Departments of Physiology at Harvard Medical School, Yale University School of Medicine, the Dean and the Chairperson of the Committee of Research Prizes at Cornell University Medical College. The Chairperson of the Department of Physiology at Cornell shall act as the Chairperson of this Committee. If the papers submitted are not considered worthy of special commendation, the prizes will be withheld.

SECTION ON COMPARATIVE PHYSIOLOGY

The Joint Task Force on Comparative Physiology recently submitted a statement on organization and procedures to Council. At its October meeting in Hollywood Beach, Council approved the following, formally establishing the APS Section on Comparative Physiology.

ARTICLE I. *Name*

The name of this organization is COMPARATIVE PHYSIOLOGY SECTION of the AMERICAN PHYSIOLOGICAL SOCIETY.

ARTICLE II. *Purpose*

The purpose of this organization is: 1) to advise the American Physiological Society on matters of interest to comparative physiologists, 2) foster the development of Comparative Physiology, and 3) to assist the American Physiological Society in organizing and presenting scientific sessions, symposia, and other programs of interest to comparative physiologists.

ARTICLE III. *Membership*

Sectional Membership is open to any member of the American Physiological Society who signs a statement declaring the wish to be a member. To accomplish this, the entire membership of the American Physiological Society will be polled during the first year that this Constitution is in effect. Thereafter, only new members of the organization will be polled to ascertain their interest.

Sectional Membership is open to those with an interest in comparative physiology and who are Regular, Associate, Corresponding, Honorary, or Retired members of the American Physiological Society.

Candidates for Sectional Membership who are not members of the American Physiological Society are nominated by two Regular Members of the Section who send their written nomination and the candidate's curriculum vitae to the Secretary. If approved by the Steering Committee, membership is recommended to the Section Council. If disapproved, letters are sent to the nominators telling of the disapproval and the reasons.

ARTICLE IV. *Officers*

Section 1. *Steering Committee.* The responsibility for management and supervision of the affairs of the Comparative Physiology Section shall be vested in the Steering Committee. The members of the Steering Committee shall be the Chairman, the Secretary, two Councilors, and the representative of the Comparative Physiology Section to the Program Advisory Committee of the American Physiological Society.

A quorum for conducting official business of the Comparative Physiology Section shall be three of the five members of the Steering Committee.

Section 2. *Councilors.* There shall be three Councilors elected to the Steering Committee, each for a term of three years, but with only one being elected in any one year, and each such Councilor to serve as chairman of the Steering Committee during the third term-year.

Section 3. *Secretary.* There shall be a Secretary elected for a term of three years.

Section 4. *Program Committee Representative.* There shall be a Program Advisory Committee Representative elected for a term of three years.

Section 5. *Election of Officers.* One Councilor shall be elected each year. The Secretary and Program Committee Representative shall each be elected to terms of three years with the Secretary being elected in the year preceding the election of the Program Committee Representative.

Nominations shall be made annually, as appropriate, to forthcoming vacancies by the Nominating Committee, and the name of each nominee shall be announced by mail to the members two months in advance of the annual meeting. Additional nominations may be made by three or more members submitting the name of a candidate who has agreed in writing to serve if elected. Nominations must be submitted at least 6 months in advance of the annual election.

Election of officers shall be by mail ballot sent to all members concurrently with the announcement of the annual meeting.

ARTICLE V. *Standing Committees.*

Section 1. *Nominating Committee.* The Chairman, in consultation with the members of the Steering Committee, will appoint annually two Regular Members to serve with a Councilor as the Nominating Committee. The Councilor serves as the Chairman of the Nominating Committee. The Committee nominates a Regular Member to serve as Councilor and, in appropriate years, the Secretary and Program Committee representative.

Section 2. *Scientific Sessions Committee.* The Chairman, in consultation with the members of the Steering Committee, will annually appoint two members to serve with the Program Committee representative as Chairman. The Committee is responsible for obtaining members of the Comparative Physiology Section to chair the scientific sessions of contributed papers on comparative physiology.

Section 3. *Symposium Committee.* The Chairman, in consultation with the members of the Steering Committee, will annually appoint a committee of three to choose topics for symposia in the next succeeding year to be presented at the annual joint meeting of American Physiological Society and the American Society of Zoologists, Division of Comparative Physiology and Biochemistry. The Committee will select the symposium and coordinate the funding for its presentation.

Section 4. *Publications Committee.* The Chairman, in consultation with the members of the Steering Committee, will recommend to the Publications Committee, American Physiological Society, to the Editor, AMERICAN JOURNAL OF PHYSIOLOGY: REGULATORY, INTEGRATIVE AND COMPARATIVE PHYSIOLOGY, and to the Editors of appropriate publications of the Society, section members for appointment to the Editorial Boards and Editorships, as vacancies occur. A minimum of five members from the Editorial Board appointed by the Editor will serve as the Publications Committee for the Section of Comparative Physiology. Its Chairman will be appointed annually by the Steering Committee from among Editorial Board members who hold sectional membership. Terms of service of sectional Associate Editors normally shall be three years with possible reappointment for one additional term as determined by the Editor, and subject to ratification by the Publications Committee of the American Physiological Society in conformity with Bylaws of the Society. Duties of the Sectional Publications Committee will be to assist the Editors in identifying, inviting, and attracting manuscripts

of interest to the Section of Comparative Physiology and to advise the Editors on publication policies of the AMERICAN JOURNAL OF PHYSIOLOGY: REGULATORY, INTEGRATIVE AND COMPARATIVE PHYSIOLOGY, and to the Editors of other publications of the Society as appropriate in relation to sectional interests.

Section 5. The Chairman may appoint additional committees that are necesssry for the proper conduct of the affairs of the Section.

ARTICLE VI. *Meetings*

The Comparative Physiology Section will meet at the time of the annual dinner and at other times determined by the Steering Committee. Members must be notified in writing at least one month before the meeting. Meetings are for transacting the business of the Comparative Physiology Section governed by Roberts Rules of Order Newly Revised.

ARTICLE VII. *General*

Section 1. *Amendments.* Amendments to these procedures must be proposed in writing to the Steering Committee by five members at least two months before the annual meeting. The proposal must then be sent to the members at the time of the announcement of the annual meeting. An amendment requires the approval of two-thirds of the entire membership for adoption.

Section 2. *Quorum.* The quorum required for all membership business meetings is no less than 15 percent of the total members of the Section.

Section 3. *Operational Guidelines.* Nothing in this Statement of Organization and Procedures shall be construed as being contradictory to the Constitution of the American Physiological Society.

HONORS AND AWARDS

Theodore H. Benzinger was awarded a citation by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. for his work on "The Design, Construction and Operation of a Scanning Radiometer for Measurement of Plane Radiant Temperature in Buildings" in cooperation with James E. Hill and B. W. Mangum.

Three APS members were elected to the Institute of Medicine, their terms beginning on January 1. *Alexander Leaf,* Jackson Professor of Clinical Medicine, Harvard Medical School, and Chief of Medical Services, Massachusetts General Hospital, Boston; *Arnold S. Relman,* Editor, *The New England Journal of Medicine,* and Professor of Medicine, Harvard Medical School; *Robert L. Van Citters,* Dean, Professor of Physiology and Biophysics, and Professor of Medicine, University of Washington School of Medicine, Seattle.

ENVIRONMENTAL, THERMAL AND EXERCISE PHYSIOLOGY (ETEP) SECTION

STATEMENT OF ORGANIZATION AND PROCEDURES

A Steering Committee under the Chairmanship of Ethan R. Nadel petitioned Council to recognize the formal establishment of a group to represent ETEP special interests within APS. Accordingly, at its Fall meeting in Hollywood Beach, Florida, Council ratified the following Statement of Organization and Procedures for the new Section:

ARTICLE I. *Name*

The name of this organization is the ENVIRONMENTAL, THERMAL and EXERCISE PHYSIOLOGY (ETEP) SECTION of the AMERICAN PHYSIOLOGICAL SOCIETY.

ARTICLE II. *Purpose*

The purposes of the ETEP Section are (1) to advise the American Physiological Society on matters of interest to physiologists working in the areas of environmental physiology, exercise physiology and temperature regulation; (2) to assist the American Physiological Society in organizing and presenting scientific sessions, symposia and other programs of interest to the members of this section; (3) to foster an active membership.

ARTICLE III. *Membership*

Membership is open to all members of the American Physiological Society. Membership will also be automatic to those individuals who attend any annual gathering (dinner, mixer, etc.) sponsored by the ETEP Section.

ARTICLE IV. *Program Committee Advisor*

The ETEP Section will elect a Chairperson each year either at the Spring Meeting of the American Physiological Society or by mail ballot before the Meeting. The Chairperson will act as an advisor to the Program Committee of the American Physiological Society. The Chairperson also will appoint working committees that are necessary for the proper conduct of the section (such as a nominating committee, planning committee, etc.). Working committees will include members from each constituent group within the section.

Dues will not be assessed.

APS SPRING MEETING SYMPOSIA

The following are tentative titles of APS sponsored symposia and special sessions together with the names of Chairmen or Organizers.

Central Nervous System Control of Afferent Input – William D. Willis, Jr.
Neural Immunology and Human Disease – William G. Shain, Jr.
Neural Peptides – M. J. Brownstein
Modulators of Synaptic Transmission – Forrest F. Weight
Neural Toxins – William A. Catterall
CNS Mechanisms of Thirst – M. J. Fregly
Growth Hormones – Jack L. Kostyo
Water Transport Across Epithelial Structure – James A. Schafer
Fever and Hyperthermia – X. J. Musacchia
Toxic Factors in Shock – Allan M. Lefer
Gastric Motility and Emptying – Joseph H. Szurszewski
(Techniques and Procedures) Tutorial on Computer Technology – Lloyd D. Partridge
Pulmonary Structure – James C. Hogg
Pulmonary Ventilation – Peter D. Wagner
Pulmonary Edema – the following three sessions organized by: Alfred P. Fishman and Eugene M. Renkin

I. Ultrastructural and Functional Bases for Exchange of Water and Protein – Alfred P. Fishman
II. Fluid Accumulation in the Lungs – Eugene M. Renkin
III. Excess Water in the Lungs – Solbert Permutt

The following symposia are co-sponsored by APS and the Gerontological Society:

Overview of the Biology of Aging – R. N. Butler
Cell Biology and Aging – L. Hayflick
Molecular Biology and Aging – J. R. Florini
Systems Physiology and Aging – N. W. Shock

THE NEW COPYRIGHT LAW

In January 1978 a new copyright law goes into effect, the first revision in United States copyright law since 1909. Since that date major changes have occurred in the kinds of copyrightable materials and their methods of dissemination, involving literary, musical, dramatic, and pictorial works, including motion pictures or other audiovisual works. The writers of the new law recognized these changes and have attempted to offer proper protection to the creators of the copyrighted material and to those who produce (publish) and use it. As members of the American Physiological Society are involved in the preparation and use of copyrighted work, and as the Society is an important publisher of copyrighted journals, books, and audiovisual materials, it seems appropriate to prepare an article on the new law for publication in *The Physiologist.* It differs from other articles on the new law that you may read as it is designed to clarify a very general law for the very specific audience that reads this journal.

In recognition of the broadness of the statements on "fair use" (use of a copyrighted work without infringing on copyright) in sections 107 and 108 of the new law, the Congress established a National Commission on the New Technological Uses of Copyrighted Works (CONTU) that was directed to develop guidelines for interpreting the fair use doctrine. The Commission worked closely with librarians, publishers, and authors in formulating these guidelines.

The guidelines and the law itself make it quite explicit that copying of single articles in libraries that are open to the public is *not* restricted, unless the reproduction or distribution is of multiple copies or is systematic. The law is quite permissive regarding copying for classroom use. In cases involving interlibrary arrangements for the exchange of photocopies, the activity is not considered systematic as long as the library receiving the reproductions does not do so in such aggregate quantities as to substitute for a subscription to a journal or purchase of a book. So that this provision of the law does not limit copying, such as that involved in the interlibrary loan system, the publishing industry was encouraged by Congress to work out a system to allow for copying beyond fair use that would not harm the author or publisher. The Association of American Publishers undertook this task. With remarkable speed, a plan was developed that is now operational. The Copyright Clearance Center, Inc. has been formed as a nonprofit organization licensed in the State of New York. It has the approval of the Department of Justice to operate as designated without being in violation of antitrust laws. The Center operates for publishers as the collector of fees for approved copying beyond fair use. The existence of this group avoids the necessity of individual contracts and transfers of money between copiers and publishers. It is *not* a licensing or enforcing agency, nor is it a copying center.

The Society plans to become a user of the Copyright Clearance Center. It will enter its research journals in the program and charge only a fee sufficient to recover costs. By joining the Center, the Society avoids the necessity of developing its own licensing and collecting procedures with many separate copiers. In addition, the Publications Committee will gain much information on how much copying of the Society journals, beyond fair use, is practiced.

Under the new law, the Society as publisher can and will continue to copyright each entire journal as it has done in the past. This protects the journals from being copied as a unit in violation of the law. However, for the Society to continue to serve you fully, it must now also have a specific transfer of the copyright of your article to the Society. Forms for such copyright transfer are now being prepared and you will, in the future, be sent one after your manuscript is received in the Bethesda publications office.

If you or your librarian have any questions concerning the Society's publications and the new copyright law, please contact Stephen R. Geiger, the Publications Manager and Executive Editor.

Publications Committee

A. P. Fishman, Chairman
R. W. Berliner
R. M. Berne

At the April 1977 business meeting the proposed Bylaws Amendment for creating a new membership category for Students was passed. This Bylaw Amendment appears under Section 7 of Article III of the Constitution, printed below.

CURRENT APPLICATION FORMS

Starting with this issue, The Physiologist shall routinely carry one copy of the current application form (following). This form will serve for all categories of membership. Any member desiring to sponsor more than one applicant may use a Xerox copy of this form. Any application submitted on an out-dated form will be returned to the sponsor to be redone on the acceptable form.

One application form serves all membership categories. There are, however, specific sets of instructions for each category. Therefore it is essential that sponsors and applicants carefully attend to those instructions specific to their desired category.

GENERAL INSTRUCTIONS

FOR ALL CATEGORIES:

Use only the current application form. Check the box indicating the category of membership for which you are applying. Use the SPECIAL INSTRUCTIONS for that category when filling out the form. Type the Application. Fill out all applicable spaces. Only completed applications will be reviewed.

The Bibliography must be submitted in the form found in the Society's journals. An example of the correct form is:

JONES, A.B., and C.D. Smith. Effect of organic ions on the neuromuscular junction in the frog. Am. J. Physiol. 220:110, 1970.

Send no reprints.

Deadline Dates: Completed applications received between February 1 and July 1 are considered for nomination by the Council at the Fall Meeting. Applications received between July 1 and February 1 are considered for nomination by the Council at the Spring Meeting. Applications are not complete until all materials, including sponsor's letters, are received.

QUALIFICATIONS (Except Students):

The Membership Advisory Committee uses the following 5 categories in evaluating an application:

1. Educational History. Academic degree and postdoctoral training are evaluated and assessed with regard to how closely the applicant's training has been tied to physiology.
2. Occupational History. Particular emphasis is given to those applicants who have a full time position in a department of physiology, or are responsible for physiology in another department. Relatively high ratings are given to people with positions in clinical departments and to people functioning as independent investigators in commercial or government laboratories.
3. Contributions to the Physiological Literature. This category is of major importance. The applicant's bibliography is evaluated on the basis of publications in major, refereed journals which are concerned with problems judged to be primarily physiological in nature. Emphasis is given to papers published as the result of independent research. Special note is taken of publications on which the applicant is sole author or first author.
4. Interest in and Commitment to Teaching Physiology. This evaluation is based on: (1) the fraction of the applicant's time devoted to teaching, (2) publications related to activities as a teacher including production of educational materials, and (3) special awards or other recognition the applicant has received for outstanding teaching effectiveness.
5. Special Considerations. This category permits the Membership Advisory Committee to acknowledge unique accomplishments of an applicant. These might be excellence in a specific area, or unusual contributions to Physiology resulting from talents, interest or a background substantially different from the average.

SPONSORS:

Primary responsibility for membership rests with the two sponsors who must be regular members of the Society. Sponsors should discuss the appropriateness of the selected category of membership in this Society with prospective applicants.

Each sponsor should write an independent confidential letter about the candidate using the five categories listed above to evaluate the candidate.

CHECK LIST:

1. Original copy of application signed by both sponsors.
2. Application on a current form, including the bibliography (1 original and 7 copies).
3. Mail the original, which has been signed by the two sponsors, plus 7 copies to:

Executive Secretary
American Physiological Society
9650 Rockville Pike
Bethesda, Maryland 20014

SPECIAL INFORMATION AND INSTRUCTIONS

FOR REGULAR MEMBERSHIP

Bylaws of the Society:

Article III, Section 2 - Regular Members. Any person who had conducted and published meritorious original research in physiology, who is presently engaged in physiological work, and who is a resident of North America shall be eligible for proposal for regular membership in the Society.

IF ALIEN: Please attach a letter and 7 copies stating visa status and type of passport and giving evidence of intent to stay in North America.

Duties and Privileges:

1. Hold Elective Office.
2. Vote at Society Meetings.
3. Serve on Committees, Boards and task forces.
4. Serve on Federation Boards and Committees.
5. Sponsor New Members.
6. Orally present or co-author a contributed paper and sponsor a non-member authored paper at the Fall scientific meeting.
7. Orally present or co-author one contributed scientific paper at the annual Federation meeting or sponsor one paper.
8. Receive the Society publications, The Physiologist and The Physiology Teacher.
9. Receive Federation Proceedings.
10. Subscribe to handbooks and periodicals published by the Society at membership rates.
11. Register to attend scientific meetings of the Federation and the APS Fall meeting at membership rates.
12. Participate in FASEB Member's Life Insurance Program, Disability Program and in Hospital Protection Plan. (For Residents of the United States, its territories or possessions).
13. Eligible to receive the Daggs Award.
14. Eligible to be selected as Bowditch Lecturer (members under 40 years of age).

FOR CORRESPONDING MEMBERSHIP

Bylaws of the Society:

Article III, Section 3 - Corresponding Members. Any person who has conducted and published meritorious research in physiology, who is presently engaged in physiological work and who resides outside of North America shall be eligible for proposal for corresponding membership in the Society.

Duties and Privileges:

1. Serve on Society Committees, Boards and Task Forces.
2. Serve as one sponsor of new Corresponding Members (One regular member must be sponsor of a new Corresponding Member).
3. Orally present or co-author a contributed paper and sponsor a non-member authored paper at the Fall scientific meeting.
4. Orally present or co-author one contributed scientific paper at the annual Federation meeting or sponsor one paper.
5. Receive the Society publications, The Physiologist and The Physiology Teacher.
6. Receive Federation Proceedings.
7. Subscribe to handbooks and periodicals published by the Society at membership rates.
8. Register to attend scientific meetings of the Federation and the APS Fall meeting at member rates.

FOR ASSOCIATE MEMBERSHIP

Bylaws of the Society:

Article III, Section 5 - Associate Members. Persons who are engaged in research in physiology or related fields and/or teaching physiology shall be eligible for proposal for associate membership in the Society provided they are residents of North America. Associate members may later be proposed for regular membership.

Duties and Privileges:

Same as for Regular Members except for the privilege of:

1. Holding Executive Office, or membership on certain committees.
2. Voting at Society Meetings.
3. Sponsoring New Members.
4. Receiving the Daggs Award.
5. Selection as Bowditch Lecturer.

FOR STUDENT MEMBERSHIP

Not all questions on the application form may be appropriate – Please place NA next to any such question.

Bylaws of the Society:

Article III, Section 7 - Student Members. Graduate students in physiology who have completed their preliminary examinations for the doctoral degree provided they are residents of North America. No individual may remain in this category for more than five years.

Duties and Privileges:

1. Present one contributed paper at the Fall Scientific meeting with the endorsement of the student's advisor.
2. Receive the Society publications, The Physiologist and The Physiology Teacher.
3. Subscribe to Handbooks and Periodicals at member rates.
4. Register to attend scientific meetings of the Federation and the APS Fall meeting at student rates.

This Form is Valid Only for 1978

APPLICANT'S LAST NAME _____

Date _____

THE AMERICAN PHYSIOLOGICAL SOCIETY

9650 Rockville Pike, Bethesda, MD 20014

MEMBERSHIP APPLICATION FOR:

REGULAR ☐
CORRESPONDING ☐
ASSOCIATE ☐
STUDENT ☐

CURRENT MEMBERSHIP CATEGORY; YEAR ELECTED _____

See Instructions

Name of Applicant: _____
First Middle Last

Mailing Address _____ Birth Date: _____

_____ Citizenship: _____

_____ Country of Permanent Residence: _____

_____ Telephone No.: _____
Zip Code

1. **EDUCATIONAL HISTORY** (Predoctoral students indicate date preliminary examination was passed.)

Dates	Degree	Institution	Major Field	Advisor

Doctoral Dissertation Title: (if any)

Postdoctoral Research Topic:

2. **OCCUPATIONAL HISTORY**

Present Position:

Prior Positions:

Dates	Title	Institution	Department	Supervisor

SPONSORS

#1. Name: _____ #2. Name: _____

Mailing Address: _____ Mailing Address: _____

_____ _____

_____ _____

_____ _____

Telephone No. Zip Code Telephone No. Zip Code

I have read the guidelines for applicants and sponsors and this application and attest that the applicant is qualified for membership.

#1 Signature _____ #2 Signature _____

Each sponsor must submit an original and 7 copies of a confidential letter of recommendation to the Society, under separate cover.

APPLICANT'S LAST NAME _____

3. **DESCRIBE YOUR PHYSIOLOGICAL TEACHING** – What percent of your time/effort is spent in teaching Physiology?_____

Describe in the space provided your teaching of physiology including course descriptions (content, format); supervision of pre-doctoral and post-doctoral students; special contributions (films, textbooks, etc.).

4. **INTEREST IN THE SOCIETY** – List any APS Meetings attended by date and check the appropriate box for any papers.

SPRING (FASEB)			FALL (APS)		
Date	Presented	Coauthor	Date	Presented	Coauthor
_____	☐	☐	_____	☐	☐
_____	☐	☐	_____	☐	☐
_____	☐	☐	_____	☐	☐
_____	☐	☐	_____	☐	☐
_____	☐	☐	_____	☐	☐

List other scientific societies of which candidate is a member:

In the space provided state your interest in wanting to join the Society:

5. **SPECIAL CONSIDERATION** – Include any other contributions (Administrative, university, national service, awards and honors) that may be important to physiology.

6. **DESCRIBE YOUR RESEARCH** – What percent of your time/effort is spent in research?_____

Describe the fundamental physiologic questions in your research and how you have answered these questions. Limit the paragraph to the space provided.

7. **BIBLIOGRAPHY** – Attach a list of your publications under the following categories:
   1. Complete physiological papers, published or accepted for publication.
   2. Physiological abstracts (limit to ½ page).
   3. Other papers not primarily physiological (limit to ½ page).

The entire bibliography should not exceed 2 pages. Give complete titles and journal references with inclusive pagination. Use the bibliographic form found in the Society's journals. List authors in the order in which they appear in the publication.

FEDERATION GOVERNANCE AND EQUITY

For some time, the Board of the Federation of American Societies for Experimental Biology and its Executive Committee have been debating the related questions of Federation governance and equity. One goal is to eliminate the veto power granted to any society by the present constitution in favor of a more workable arrangement for modifying the constitution and bylaws. Among other things, this will make it easier to consider applications of other societies for membership in the Federation. The question of the share of the assets of the Federation that would accrue to a new member society is a related question, as is the question of the share of the Federation assets that should go to a society that withdraws from the Federation. A committee chaired by Dr. Carl Vestling has analyzed the Constitution of the Federation and unanimously recommended the changes listed below. The recommendations of the Vestling Committee were adopted by the Federation Board on November 11, 1977, by a vote of 15-0, with 3 abstentions. Under the terms of the present Constitution, the recommended constitutional amendments are now subject to ratification by each of the 6 member societies of the Federation. The Council of the American Physiological Society will consider the matter at its winter meeting in March 1978. We welcome comments and opinions from the membership on this important matter.

William F. Ganong, M.D.
President
American Physiological Society

CHANGES DENOTED BY UNDERLINING

PROPOSED REVISION OF FEDERATION CONSTITUTION AND BYLAWS

Considered by the FASEB Executive Committee, November 11 and 12, 1977

CONSTITUTION

ARTICLE I. *Name*

The name of this organization is the Federation of American Societies for Experimental Biology.

ARTICLE II. *Purpose*

The purposes of the Federation are: to bring together investigators in biological and medical sciences represented by the member Societies; to disseminate information on the results of biological research through publications and scientific meetings; and to serve in other capacities in which the member Societies can function more efficiently as a group than as individual units.

ARTICLE III. *Membership*

SECTION 1. The constituent members of the Federation are, in order of affiliation: The American Physiological Society, Inc.; American Society of Biological Chemists, Inc.; American Society for Pharmacology and Experimental Therapeutics, Inc.; American Association of Pathologists, Inc.; American Institute of Nutrition, Inc.; The American Association of Immunologists.

SECTION 2. Other societies in the field of biological science may apply for membership, and may be admitted by a three-fourths majority vote of all of the members of the Federation Board.

SECTION 3. Any constituent Society may withdraw from the Federation one year following notification to the Federation Board of its intention. In the event of the withdrawal of a member Society, it shall be entitled to recover its then current share of the unrestricted liquid assets of the Federation within five years of the date of its withdrawal. Liquid assets are defined as the current assets, including the Capital Investment Fund, minus the current liabilities.

SECTION 4. a. Rights of Members in the Assets: The fixed assets of the Federation are defined as the land, buildings, furniture, and equipment, and include the Depreciation Fund which was established for repair and replacement of fixed assets. The fixed assets are considered as nondivisible and shall be subject to liquidation and distribution among the Societies only in the event of dissolution of the Federation. Rights in the liquid assets shall be recalculated annually on July 1 on a percentage basis based on (1) the certified financial data of the previous December 31 and (2) the proportional active membership of each Society for the preceding fifteen years as determined by assessments paid to the Federation.

b. A new member Society shall have no claim in equity in the liquid assets of the corporate structure for the first five years of Membership. Beginning with the sixth year and continuing for the next fifteen years a new Society shall accrue equity at the rate of five per cent of a full proportional share per year, after which time an additional twenty-five per cent participation in equity will be credited to the Society's account, and full participation in equity shall have been achieved. In the case of a new member Society the calculation of equity for the period which includes the sixth through the fifteenth year of affiliation with the Federation will be based on the active membership within that Society for the period of its affiliation with the Federation.

SECTION 5. In the event of dissolution of the Federation, the total assets, after settling all obligations, shall be divided among the constituent member Societies in accordance with the proportions calculated by the provisions of Article III, Section 4 a.

ARTICLE IV. *Management*

The management of the Federation shall be vested in a Federation Board, on which each of the constituent Societies shall have membership according to the following distribution: up to 1,000 Society members, one Board member; 1,000-3,000, two Board members; over 3,000, three Board members. The Chairman of the Federation Board shall be furnished for a one-year term by each Society in its turn as determined by the order of affiliation with the Federation.

ARTICLE V. *Amendments*

SECTION 1. Constitution. Amendments to this Constitution may be proposed by any of the constituent Societies. If approved by a two-thirds majority of the Federation Board, the proposal shall then be referred to the constituent Societies. The amendment shall be adopted when approved by a three-fourths majority of all the Board members.

SECTION 2. Bylaws. Bylaws may be adopted or amended by the Federation Board at any meeting of the Board by vote of two-thirds of the members of the Board present and voting.

BYLAWS

ARTICLE I. *The Federation Board*

SECTION 1. The Federation Board shall consist of representatives from each of the constituent Societies according to the provisions of the Constitution, Article IV. Each Society shall arrange for the appointment of its representatives to the Board in such a fashion that not more than one new Society representative will be appointed each year. Members of the Board shall serve terms of three years, except in the case when a given Society represented by one or two Board members is scheduled to furnish the Chairman of the Federation Board, who shall also be the President of the Federation. In such a year the particular member Society may need to alter the term of service on the Board for one of its representatives. Terms shall commence on July 1. When terms are not completed, Societies shall appoint representatives to finish terms. The immediate Past Chairman of the Federation Board shall be a non-voting member of the Board.

SECTION 2. The Federation Board shall have responsibility for control and general management of all affairs of the Federation. Any constituent Society, the Executive Committee, or the Executive Director may refer matters to the Federation Board for its consideration. In the interim between regular meetings of the Federation Board, matters may be referred to the Executive Committee which may take such actions as are consistent with policies established by the Board. At the discretion of the Executive Committee, any matter may be referred to the Board for action by a mail vote.

SECTION 3. The Federation Board shall meet at least once annually, and at such other times as shall be determined by the Chairman. A quorum of the Federation Board shall consist of a three-fourths majority of all of the Board members or appropriately designated substitutes. The Federation Board may take such action or may authorize the Chairman or the Executive Director to take such action as is approved by a majority of the Board members present and voting. To take action by a mail ballot, a majority vote of all Board Members shall be required. The actions of the Federation Board shall be reported to the annual business meetings of the member Societies.

SECTION 4. The Federation Board shall control and be responsible for all assets of the Federation, shall determine the annual Federation assessment to be levied upon the constituent Societies, and shall establish an annual budget after considering a proposed budget submitted by the Executive Director with the approval of the Executive Committee.

ARTICLE II. *Executive Committee of the Federation Board*

SECTION 1. An Executive Committee composed of one member designated by each constituent Society from its representatives to the Federation Board shall be a standing Committee of that Board. Executive Committee members shall be appointed for a term of three years, with at least two Societies designating representatives each year. The terms of the members of the Executive Committee shall coincide with their terms on the Federation Board. The Chairman of the Federation Board shall be the Chairman of the Executive Committee and shall be a voting member of both. The immediate Past Chairman of the Federation Board and the executive officer or other designated representative of each of the constituent Societies shall be non-voting members of the Executive Committee. The Committee shall meet at least three times annually at the call of the Chairman.

The Executive Committee shall be empowered to act on behalf of the Board in the best interest of the Federation during the intervals between Board meetings. The Executive Committee shall serve as the Agenda Committee for the Board, as a Budget Committee which shall recommend an annual budget to the Board, and as a Long Range Planning Committee for the Federation. In all other ways it shall assist the President and the Executive Director in the operation of the affairs of the Federation. A majority of the Executive Committee may request a mail vote by the Federation Board on any matter brought before it.

ARTICLE III. *Officers*

SECTION 1. *President.* The Chairman of the Federation Board shall be the President of the Federation, and the terms of office in these posts shall be concurrent. The Chairman shall be furnished for a one-year term by each Society in its turn as determined by the order of affiliation with the Federation. The year in which the Chairman serves, shall be the third or fourth year of his or her membership on both the Board and the Executive Committee. A new member Society shall furnish the Chairman of the Board after the then current member Societies complete a full cycle of incumbency periods. The powers and duties of the President shall include the following: The President shall: a) preside at meetings of the Federation Board and of its Executive Committee, and be an ex officio member of all other committees; b) have authority to sign and execute contracts, agreements and other legal documents in the name of the Federation under such circumstances as shall be indicated by the Board or Executive Committee; c) be the chief executive officer of the Federation responsible for all of its affairs during the intervals between meetings of the Executive Committee of the Board.

SECTION 2. *Vice-President.* That member of the Executive Committee of the Federation who will, in the following year, serve as Chairman of the Federation Board, shall serve as Vice-President of the Federation. The Vice-President shall have authority to sign and execute all contracts, agreements and other legal documents in the name of the Federation upon authorization by the Federation Board, its Executive Committee or its Chairman. In the absence of the President, the Vice-President shall preside at meetings of the Board and the Executive Committee. The Vice-President shall serve as Chairman of the Program Committee for the annual meeting of the Federation.

SECTION 3. *Treasurer.* The Treasurer of the Federation shall be appointed by the Executive Committee upon recommendation of the Councils of the constituent Societies in order of affiliation with the Federation and shall serve as Chairman of the Finance Committee. The term of service will normally include one year as Treasurer-Elect followed by two years as Treasurer. The Treasurer shall: a) attend meetings of the Board and the Executive Committee but have no vote; b) be responsible to the Executive Committee for safeguarding the funds of the Federation; c) advise the Executive Committee and Board concerning the propriety of fiscal practices with relation to established Federation policy and with relation to the policies of granting and taxing agencies. The Treasurer-Elect shall attend meetings of the Finance Committee but shall have no vote.

SECTION 4. *Secretary.* The Executive Director shall be Secretary of this corporation and shall be responsible for the preparation of the Minutes of the Executive Committee and Board meetings.

SECTION 5. The Board may appoint from time to time such assistant secretaries and assistant treasurers as it sees fit, to serve at the pleasure of the Board.

ARTICLES IV through X: No changes considered by the Ad Hoc Committee listed below.

Robert W. Berliner, APS
Steven E. Mayer, ASPET
Kenneth M. Brinkhous, AAP
L. M. Henderson, AIN
K. Frank Austen, AAI
Robert O. Nesheim, FASEB Treasurer
Aaron Rosenthal, Consultant
Carl S. Vestling, ASBC, Chairman

October 27, 1977

FREE MOVEMENT OF SCIENTISTS

From time to time, scientists are prevented by political actions from attending scientific meetings. The International Council of Scientific Unions has a Committee on Free Circulation of Scientists which investigates and takes what actions it can to prevent interference with participation at scientific meetings. In addition, the International Union of Physiological Sciences and the USA National Committee for the International Union of Physiological Sciences (USANC/IUPS) have been working to ensure free communication among scientists. To this end, USANC/IUPS offered a resolution on free movement that was adopted unanimously at the meeting of the General Assembly of IUPS in Paris on July 17, 1977. We urge any scientist who has difficulty obtaining a visa to attend an international meeting, or anyone who knows of instances in which free movement was obstructed by political actions to promptly contact the organizers of the meeting and the International Council of Scientific Unions, the Secretary-General of the International Union of Physiological Sciences, or the Chairman of USANC/IUPS so that the problem can be investigated and assistance given in solving it.

Dr. A.G.B. Kovach
Secretary-General
International Union of
Physiological Sciences
Semmelweis Medical
University
1082 Budapest
Ulloi-ut 78-A HUNGARY

Dr. William F. Ganong
Chairman, USANC/IUPS
Department of Physiology
University of California
San Francisco,
California 94143
USA

The text of the USANC/IUPS resolution adopted at the General Assembly is as follows:

Whereas the International Union of Physiological Sciences has previously expressed its adherence to the principle that scientists from all parts of the world should be free to attend scientific meetings sponsored by the Union;

Whereas the Union supports the vigorous efforts expended by ICSU through its standing Committee on the Free Circulation of Scientists to deal with problems arising when scientists are prevented, by political actions, from participating in scientific meetings;

Whereas the General Assembly of the International Union of Physiological Sciences regards the free exchange between scientists, with particular emphasis on the participation of young investigators in Union-sponsored meetings and Congresses, to be essential to the growth of the science of physiology;

And whereas, decisions which interfere with the free circulation of scientists generally reflect diplomatic and political differences between nations, preventive or corrective actions initiated through diplomatic channels might obviate the necessity for punitive actions;

Therefore, it is resolved by the General Assembly of the XXVIIth International Congress of the International Union of Physiological Sciences to adopt the following procedures upon being informed that *bona fide* scientists have been prevented from attending Union-sponsored scientific meetings by denial or failure to issue entry or exit visas.

1. The Secretary of IUPS will obtain from appropriate sources complete information about the nature and origin of the problem. Corrective action will be facilitated if information concerning the problem will reach the Secretary not later than one month prior to the planned meeting.
2. The Secretary of IUPS will immediately provide this information to the officers of each national member adhering to IUPS.
3. The Secretary of IUPS will urge the officers of adhering organizations to seek an audience with the local diplomatic representatives of the country in which the problem originates in order to convey the following:
   a) the resolutions expressing the ICSU position on matters relating to the free circulation of scientists;
   b) the congruent position of IUPS on such matters;
   c) the fact that invitations to participate in IUPS-sponsored meetings are issued to individual scientists as scientists and not as governmental representatives;
   d) the regrets of the local physiological community that political or diplomatic matters have been allowed to interfere with scientific exchange and progress;
   e) the request that the local diplomatic representatives convey to their foreign ministry the facts and opinions expressed during this exchange.

It is further resolved that the appropriate officials of ICSU and other unions adherent to ICSU be informed of this action.

A PAST PRESIDENT RETROSPECTS

Over the past 3 years, Dr. Julius Comroe, for 17 years Director of the Cardiovascular Research Institute, University of California, San Francisco, has written a series of 28 essays for the American Review of Respiratory Disease. In response to requests by many readers, he has now revised the articles and collected them in a 192-page soft-cover volume, *Retrospectroscope — Insights into Medical Discoveries.* The author examines in an informal and entertaining style the whole process of scientific discovery from the inception of an idea to its first communication in print, and the many intermediate steps by many scientists in many disciplines before the idea led to full clinical use; along the way, he looks at chance discoveries, some missed scientific opportunities, the contributions of young scientists, delays between the initial discovery and application, and factors that held back discovery. Some typical chapter titles are: Whodunit and Why; Roast Pig and Scientific Discovery; Tell It Like It Was; The Clouded Crystal Ball; What Makes the Sky Blue; Speculation on Speculation; Publisher's Dawdle; How to Make Hasenpfeffer.

The book is now available, by mail order only, from The Von Gehr Press, P.O. Box 7654, Menlo Park, CA, 94025; the cost is $5 a copy, including postage and handling.

CLAUDE BERNARD ANNIVERSARY COMMEMORATION

Stanford University School of Medicine announces a three-day conference to be held on the Stanford campus from February 10-12, 1978. It will commemorate the 100th anniversary of the death of Claude Bernard, one of the greatest figures in the history of experimental physiology and medicine.

The purpose of this conference is to memorialize his life by summarizing his life and work, provide links between his work and modern developments in regulatory biology, and disseminate this knowledge.

The conference will consist of presentations by invited speakers who will present their own work, but also review the "state of knowledge" in specific areas. Discussions will also be invited from the audience. Enrollment, limited to 350, is open to all interested scientists and students; there is no registration fee required.

This conference is acceptable for up to 20 hours of Category I credit in the California Medical Association's Certificate in Continuing Medical Education program.

Course applications may be obtained from Dr. Eugene Robin, Room C-352, Stanford University School of Medicine, Stanford, California 94305, telephone (415) 497-5956.

OPTICAL MICROSCOPY AND PHOTOMICROGRAPHY IN THE BIOMEDICAL SCIENCES

The Marine Biological Laboratory, Woods Hole, Massachusetts, announces Optical Microscopy and Photomicrography in the Biomedical Sciences, a residential laboratory course, March 12-18, 1978.

This concentrated program is intended primarily for scientists and physicians who require theoretically based training and experience in modern light microscopy. Among the topics to be discussed and practiced will be bright and dark-field, phase and modulation contrast, high extinction polarized light and differential interference microscopy, fluorescence, and color and black-and-white photomicrography and cinemicrography. The Instructor-in-Chief will be Robert Day Allen of Dartmouth College. Additional information and application materials may be obtained from the Director of Admissions, Marine Biological Laboratory, Woods Hole, Mass. 02543. The Marine Biological Laboratory admits any students of any race, color, and national or ethnic origin.

REFRESHER COURSE IN CARDIAC IMAGING

A refresher course in cardiac imaging will be presented by the North American Society for Cardiac Radiology, March 20-24, 1978 at the MGM Grand Hotel, Las Vegas, Nevada.

The program will follow the standard format of morning lectures series followed by afternoon workshops. Faculty members of internationally known authorities in cardiology, radiology, ultrasound, nuclear medicine and computerized tomography will direct the program. The course is sponsored by the American College of Radiology and the council on Clinical Cardiology of the American Heart Association and will offer approximately 23 hours of credit for Category I of the AMA Physician's Recognition Award. For further information please contact:

Teri Dibble
Conferences and Institutes
Division of Continuing Education
University of Utah
1152 Annex Bldg.
Salt Lake City, Utah 84112

22nd Annual Bowditch Lecture

THE INTRARENAL METABOLISM OF PHOSPHATE

Franklyn G. Knox, M.D., Ph.D.

Before launching into a discussion of phosphate metabolism, I thought you might be interested in the evolution of this topic in our laboratory. Our original interests, and indeed our sustained interests, are in the dynamics of glomerular filtration and the intrarenal regulation of sodium metabolism. In the process of exploring the regulation of sodium transport by the proximal tubule it became apparent to us that hormones which affected sodium excretion, such as aldosterone, had little effect on proximal sodium transport (1). On the other hand, hormones which affected phosphate transport, such as parathyroid hormone, had a marked effect on sodium reabsorption by the proximal tubule (2). Accordingly, as the story unraveled we were drawn into an exploration of the regulation of phosphate transport in the proximal tubule. I am most appreciative of the academic freedom and support* that allowed for pursuit of these new endeavors in research.

In the discussion of intrarenal phosphate metabolism I will address 3 areas, the site of phosphate reabsorption in the nephron, the mechanism of phosphate reabsorption in terms of bidirectional fluxes, and the kinetics of phosphate transport at the single nephron level.

The intrarenal metabolism of phosphate, as classically portrayed, is shown in figure 1. Phosphate is rather freely filterable at the glomerulus and approximately 80% of the filtered load is reabsorbed in the proximal tubule. The remainder, which escapes reabsorption appears in the urine. Although in general this scheme serves us well, free flow micropuncture studies have suggested that there might be distal sites of phosphate reabsorption (3). Such distal sites would have important implications because they might be characterized by different transport parameters, such as maximum transport capacity and affinity for the transport process, and they might be responsive to different hormones than the proximal phosphate transport site. Finally, distal reabsorption of phosphate might account for the syndromes of pseudohypoparathyroidism in which the kidney appears unresponsive to the phosphaturic effects of parathyroid hormone (4). Phosphate rejected from the proximal tubule might be subsequently reabsorbed distally. For all these reasons it was particularly important to assess phosphate transport beyond the proximal tubule.

One approach is to micropuncture the latest accessible portions of the proximal tubule to compare the delivery of phosphate at that point with phosphate excretion in the urine. We performed such micropuncture experiments in the dogs (5). The site of micropuncture in the superficial proximal tubule is crucial to interpretation and is shown in figure 2. The procedure for localizing the latest accessible segment of the proximal tubule is to inject lissamine green dye and to micropuncture the last proximal segment that appears on the surface of the kidney. The point of micropuncture is indicated by the arrow in the photograph of the surface of the dog kidney. The tubule which has been micropunctured is filled with latex. Following the completion of the experiment the tubule was removed and the entire dissected proximal tubule is shown in the center of the figure. An important point here is that the latest segment of the proximal tubule which is accessible to micropuncture is only about 60% of the total length of the proximal tubule. The rest of the proximal tubule is inaccessible since it dives into the substance of the kidney and subsequently joins the loop of Henle. Accordingly it will be important to keep in mind that the late segments of the proximal tubule available for micropuncture are not at the end of the anatomic segment. Phosphate in tubule fluid was

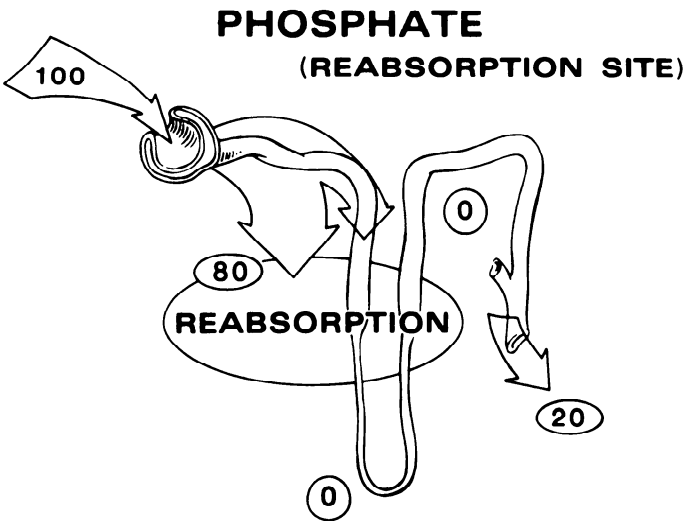

Fig. 1: Renal phosphate reabsorption; the classic description.

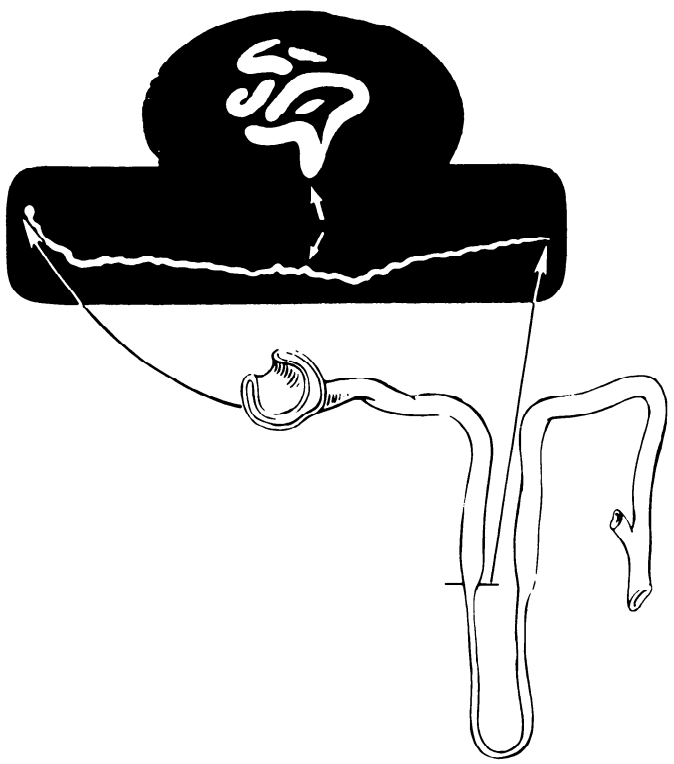

Fig. 2: Site of micropuncture in the proximal tubule of the dog. Reproduced with permission from Knox et al. Methods in Pharmacology, 4:73, 1976.

*I am grateful for support from the National Institutes of Health through a Career Development Award HL 18518 and grants from the NHLBI, HL 14133, NIAMDD, AM 19715 and the Kidney Disease Research Training Grant AM 07013 as well as funding from the Mayo Foundation.

measured with electron probe microanalysis in collaboration with Dr. Claude Lechene of the Harvard Medical School. I will describe this methodology in greater detail shortly. Figure 3 shows the results of these experiments performed in thyroparathyroidectomized dogs. In the upper left hand panel note that delivery at the point of micropuncture in the proximal tubule is approximately 25% of the filtered load of phosphate. Excretion in the urine, shown in the lower right panel, was less than 5% of the filtered load. Accordingly, 20% of the filtered load of phosphate was reabsorbed beyond the point of micropuncture in the proximal tubule. When parathyroid hormone was administered, the delivery of phosphate from the proximal tubule increased markedly and this increased delivery of phosphate appeared in the urine in the form of a marked phosphaturia. This increase in delivery of phosphate from the proximal tubule could be closely mimicked by volume expanding the thyroparathyroidectomized dog. In contrast to the phosphaturia seen following administration of PTH, the increased delivery of phosphate from the proximal tubule following volume expansion was accompanied by an insignificant change in phosphate excretion in the urine. Thus these two observations: 1. The discrepancy between delivery of phosphate from the proximal tubule and urinary excretion in thyroparathyroidectomized animal and 2. The reabsorption of the increased delivered load of phosphate from the proximal tubule following volume expansion, both suggest that there is an important site for phosphate reabsorption which is sensitive to parathyroid hormone beyond the point of micropuncture in the proximal tubule.

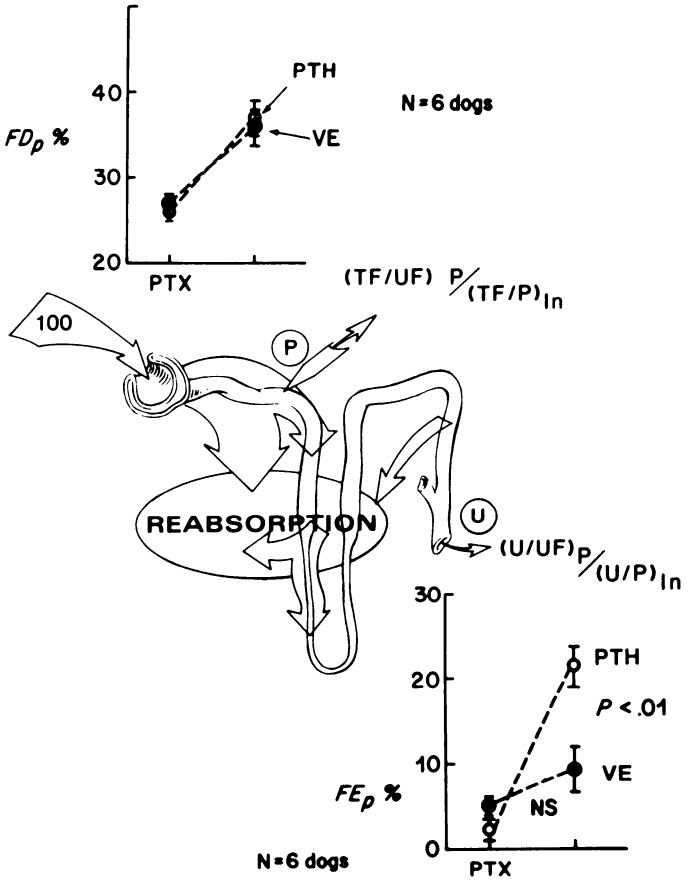

Fig. 3: The effects of parathyroid hormone and volume expansion on delivery of phosphate from the proximal tubule are depicted in the upper left panel. The phosphaturic effects are shown in the lower right panel.

The site of phosphate reabsorption beyond the point of micropuncture in the proximal tubule could be in any number of structures including the remainder of the proximal convoluted tubule inaccessible to micropuncture, the pars recta of the proximal tubule, the thin descending and ascending limbs of the loop of Henle, the thick ascending limb of the loop of Henle, the distal convoluted tubule, the cortical collecting duct and the papillary collecting duct. Our next series of experiments, conducted in collaboration with Drs. Florian Lang and Rainer Greger, were directed toward identification of phosphate transport in the descending and ascending limbs of the loop of Henle respectively (6). This was accomplished by stationary microperfusion of proximal tubules and pars recta inaccessible to free flow micropuncture. The procedure was to inject an isolated drop which contained P_{32} tracer and non-reabsorbable solute. This drop was placed in the descending segment of the proximal tubule and pars recta and then subsequently reaspirated for analysis of the recovery of phosphate and inulin marker. This same maneuver was performed in the distal convoluted tubule with a retrograde placement of the isolated drop in the ascending limb of the loop of Henle. The results of these studies are shown in figure 4. The closed symbols represent stationary microperfusions in the descending proximal tubule and pars recta. The intercept represents mixing with the cellular phosphate pool and the slopes represent reabsorption. Phosphate reabsorption was particularly avid in the proximal segments. In contrast, no significant reabsorption could be detected in the ascending limb of the loop of Henle or in the distal convoluted tubule. These findings are in close agreement with the studies by Dennis, Woodhall and Robinson for the pars recta and by Rocha, Magaldi and Kokko for ascending limbs of isolated perfused rabbit tubules (7, 8). We concluded from these studies that the proximal tubule segments inaccessible to free flow micropuncture, and most likely the pars recta, are significant sites for phosphate transport. Further, we could show a marked effect of parathyroid hormone on phosphate transport in this segment. These studies also indicated that phosphate transport in the ascending limb of the loop of Henle and distal convoluted tubule was negligible.

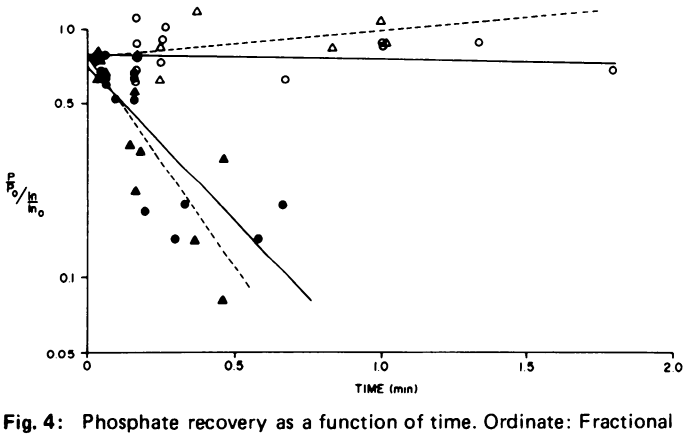

Fig. 4: Phosphate recovery as a function of time. Ordinate: Fractional phosphate recovery. Abscissa: Exposure time. Closed triangles: proximal convoluted tubules, closed circles: descending segments, open circles: ascending segments, open triangles: distal convoluted tubules. Broken lines: linear regressions of data points from proximal and distal convoluted tubules respectively, solid lines: linear regressions of data points from descending and ascending segments of "loops of Henle" respectively (6). Reproduced with permission from Pflugers Archiv, 368:47, 1977.

These studies did not rule out, nor did they address, possible phosphate transport in the late segments of the distal convoluted tubule or in the terminal collecting system. Indeed Amiel, Kuntziger and Richet have demonstrated a discrepancy between phosphate delivery in the superficial distal nephron and urine (9). This discrepancy has been interpreted to indicate phosphate transport in the distal nephron and collecting system. In our own laboratory we also demonstrated this discrepancy between the distal delivery of phosphate and the urinary excretion of phosphate. On the other hand, microinjection studies from several laboratories indicate complete recovery of radiolabelled phosphate which is injected into the distal nephron (10,11) (Figure 5). With this technique, al-

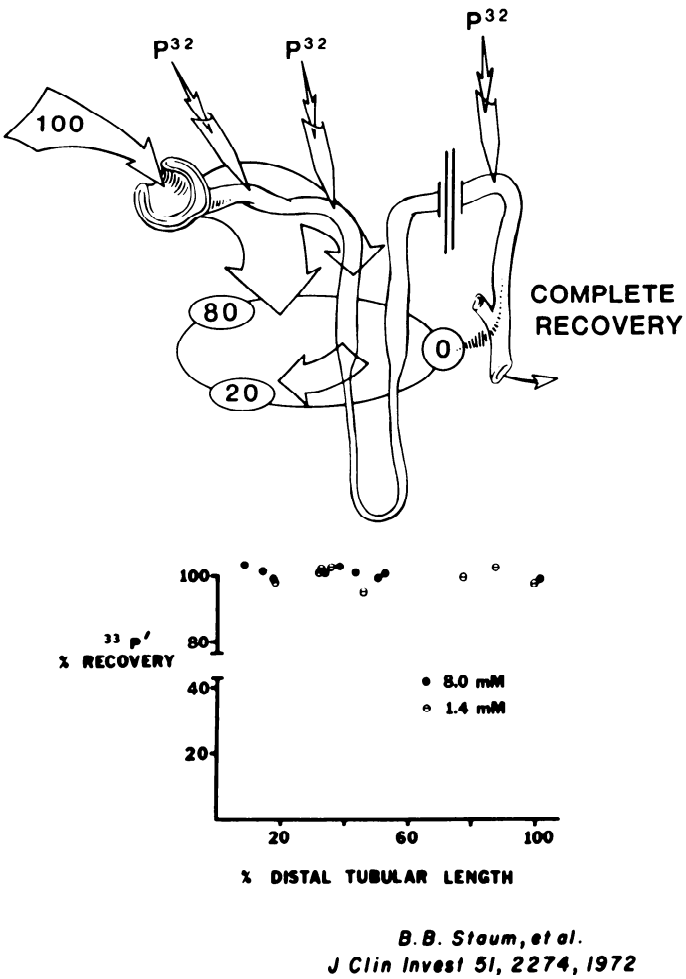

Fig. 5: The recovery of labelled phosphate which has been injected into the superficial distal tubule.

though avid phosphate reabsorption is demonstrated following injection of radiolabelled phosphate in the early and late proximal tubules, no reabsorption is seen in the terminal nephron. The failure to detect reabsorption in this nephron segment has been attributed to several defects in the microinjection methodology. First, phosphate concentrations have been injected which are far above those normally seen by the nephron. In addition, this additional phosphate is injected on top of the normally occurring tubule load of phosphate. Further, the tubule flow rates are increased with the use of an osmotic diuretic which cuts down on the contact time available for phosphate transport. Thus it could be argued that a small but important transport capacity with a high affinity might be overlooked. We attempted to circumvent these criticisms by developing technique we refer to as microinfusion (12). With this method we block the tubule to be microinjected with an oil column and then infuse phosphate at low physiologic concentrations and flow rates for several minutes. No osmotic diuresis is employed. Thus with this technique very low phosphate concentrations can be employed and the contact time available for phosphate transport can be maximized. The results of one such study are shown in figure 6. Microperfusion in the distal tubule resulted in complete recovery of the microinfused phosphate in relation to the microinfused inulin marker. On the other hand, in the same studies, microinfusion in the late accessible proximal tubule resulted in a clear demonstration of phosphate transport. The results from the intact animals are shown since the discrepancy between distal delivery and urine is greatest in this group. However, similar microinfusion results were obtained in thyroparathyroidectomized animals. It is important to emphasize that we performed both the free flow micropuncture studies and the microinfusion studies in the same animals. Thus the discrepancy between distal delivery of phosphate with free flow micropuncture and urinary excretion of phosphate was clearly demonstrable whereas phosphate transport using the microinfusion technique could not be demonstrated in the terminal nephron.

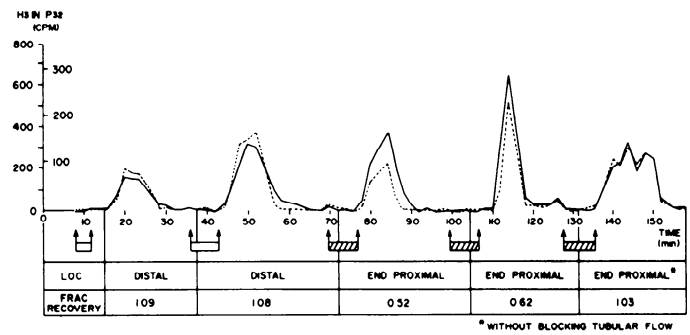

Fig. 6: Microinfusions at different nephron sites in intact animals. The urinary tracer concentration (^{3}H-inulin = solid line, ^{32}P phosphate = dotted line) are plotted versus a time axis. The open boxes indicate the duration of distal microinfusions, the shaded boxes the duration of end proximal microinfusions. For each microinfusion the cumulative ^{3}H and ^{32}P recovery (between the two corresponding perpendicular lines) and the fractional ^{32}P recoveries are calculated.* = In the last microinfusion, the tubular flow proximal to the site of microinfusion was not blocked (12). Reproduced with permission from Pflugers Archiv., 369:115, 1977.

One possible explanation for this discrepancy between phosphate delivery to the distal nephron and urine is that rather than distal reabsorption of phosphate, the proximal tubules of deep nephrons may reabsorb phosphate more avidly than superficial nephrons. To test this hypothesis we compared the deliveries of phosphate from juxtamedullary nephrons with the delivery of phosphate from the superficial nephrons (13). To do this John Haas from our laboratory exposed the papilla of the Munich-Wistar rat and micropunctured the ascending limb of the loop of Henle (figure 7). Inasmuch as we and others had previously demonstrated that there was no phosphate transport in the ascending limb of the loop of Henle, we took this comparison to be representative of the distal delivery of phosphate for deep nephrons and superficial nephrons. Mrs. Theresa Berndt measured the phosphate concentrations in tubule fluid with an ultramicromodification of the Chen colorimetric method. The results of these studies

indicate that the phosphate delivery from deep nephrons was significantly less than the phosphate delivery to superficial nephrons and that this heterogeneity of phosphate transport largely accounts for the discrepancy between the distal delivery of phosphate and urinary excretion of phosphate. Note that there is a small fraction of phosphate reabsorption which we cannot account for by these differences in delivery. With this reservation in mind, we summarize this aspect of these studies as follows; in general, phosphate transport can be accounted for by reabsorption in the proximal convoluted tubule and the pars recta of the proximal tubule. With stationary microperfusion technique we could not detect significant phosphate transport in the segments distal to the proximal straight tubule. Discrepancies between superficial deliveries of phosphate and urinary excretion of phosphate could be accounted for largely by nephron heterogeneity in which deep nephrons reabsorb phosphate more avidly than superficial nephrons. In addition to minimizing the important implications of distal reabsorption we discussed earlier, the significance of this result is that phosphate, one of the principal constituents of urinary stones, is reabsorbed in proximal segments of the nephron and only that phosphate necessary for excretion is presented to the loop of Henle and distal nephron segments where water is abstracted and

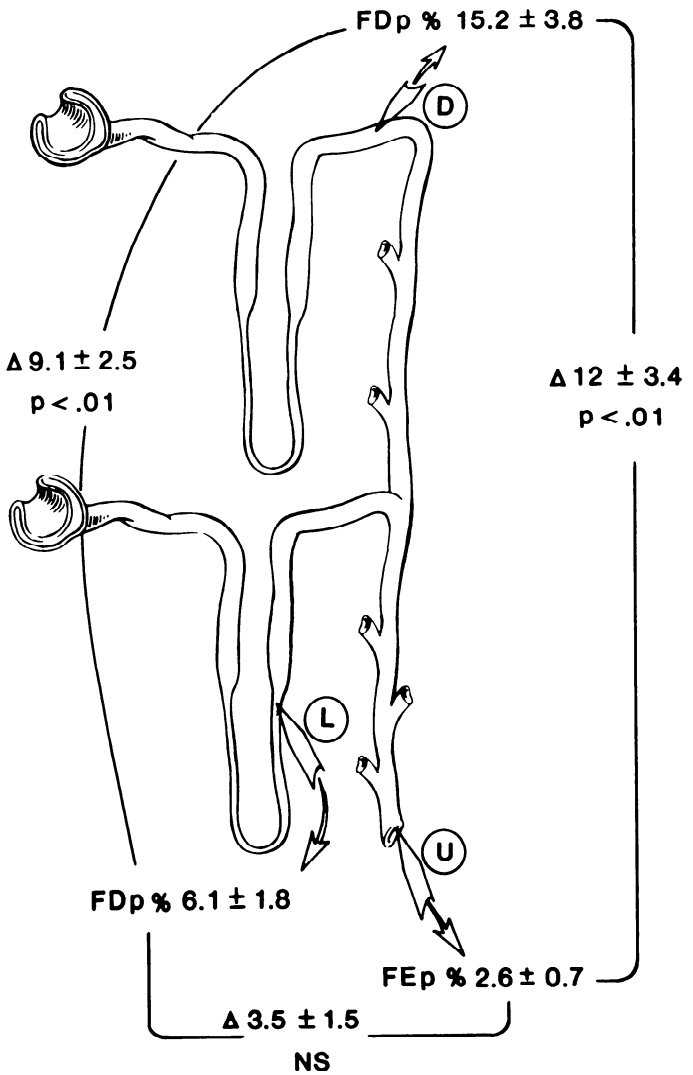

Fig. 7: The fractional delivery of phosphate in the superficial distal tubule, ascending limb of the loop of Henle of deep nephrons, and urine are shown for thyroparathyroidectomized rats.

the concentration of electrolytes rises precipitously. Further, the failure of the kidney to respond with a phosphaturia following administration of parathyroid hormone in pseudohypoparathyroidism is probably due to a defect in proximal tubule function rather than to distal reabsorption of phosphate.

I would like to turn our attention to mechanisms of phosphate transport. In experiments reported by the late Dr. Pitts in 1933 it was clear that increasing the plasma phosphate concentration resulted in a marked increase in phosphate excretion in the urine and that the phosphate excretion in the urine approached the filtered load of phosphate (figure 8) (14). Indeed some points fell above the unity ratio which could be interpreted as secretion of phosphate. Dr. Pitts did not interpret these studies that way and felt that those points could be the result of the random errors associated with the ratio of two clearances. Nonetheless, it is clear that either phosphate reabsorption must be virtually completely abolished by phosphate loading or there must be a very significant influx component. We undertook microperfusion studies to evaluate the magnitude of phosphate influx (15).

MECHANISM: BIDIRECTIONAL FLUX

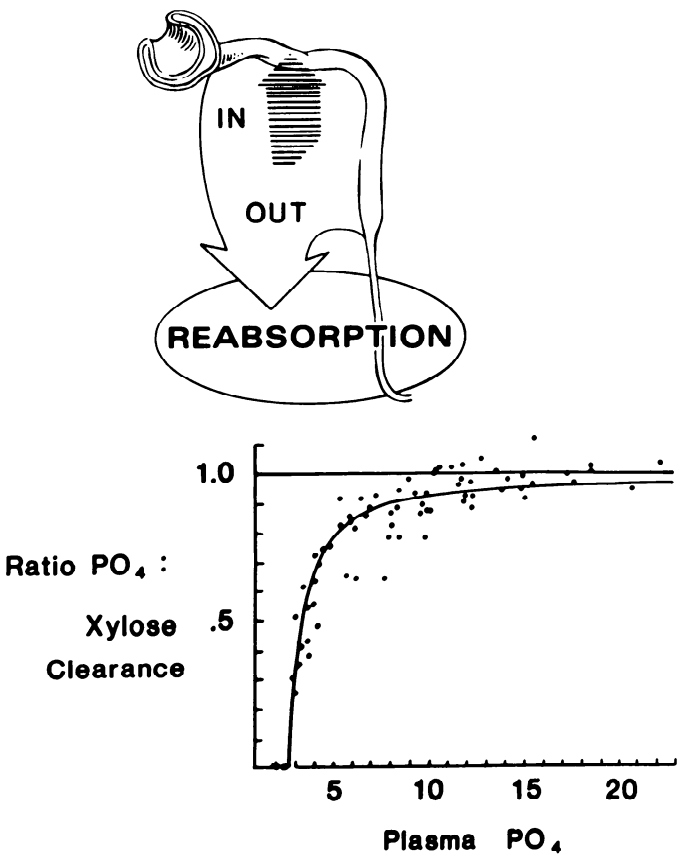

Fig. 8: The effect of increasing plasma phosphate concentrations on the fractional excretion of phosphate is shown in the lower panel (14). One hypothesis to explain this result, secretion of phosphate, is shown in the upper panel.

We prepared rats to maximize any possible influx by volume expansion, phosphate loading and parathyroid hormone infusions. Then we microperfused proximal tubules with solutions that were free of phosphate. Any phosphate appearing

in the collected microperfusate would represent influx of phosphate across the tubule wall. A very important control for these studies was to evaluate contamination of the microperfusions through puncture of capillaries or adjacent tubules. To evaluate this potential source for contamination we infused inulin in the systemic circulation. This inulin would be in all extracellular fluid including the adjacent nephrons but would not be contained in the microinfusion. Hence, detection of inulin in collected microperfusate was taken as evidence for contamination. These studies were done in collaboration with Dr. Lechene utilizing the electron probe microanalysis. Seventy picoliter samples of collected microperfusate were placed on a beryllium block and freeze dried. The crystal spots were then bombarded with an electron beam and the characteristic x-ray emissions for phosphate were analyzed. The relationship between the counts emitted and the phosphate concentration was linear, highly reproducible, and able to detect small concentrations of phosphate. The results of these studies are shown in figure 9.

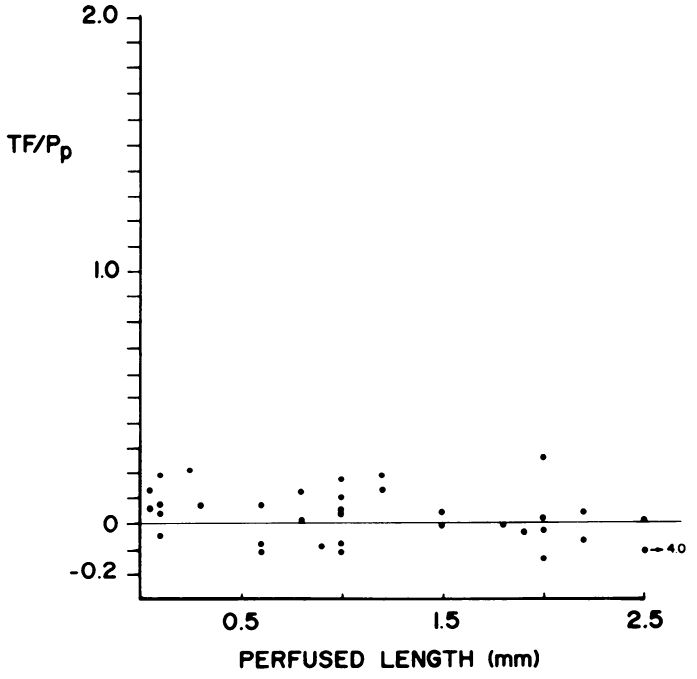

Fig. 9: Microperfusion data showing the phosphate concentrations in collected perfusate when proximal tubules were perfused with phosphate free solutions (15).

Phosphate concentrations in collected microperfusate were not significantly different from zero. The points that are below zero in this figure are the result of the simultaneous counting of background and samples with the random statistics of counting resulting in higher background counts than counts from samples. This then is simply a reflection of phosphate concentrations which are not significantly different from background. From these studies we concluded that the influx component of net phosphate reabsorption is negligible compared with the outflux component. Dr. Dennis reviewed data from the isolated perfused rabbit tubule also indicating that influx is very small relative to the predominant outflux rate (7). Thus influx of phosphate in the proximal tubule appears insignificant in regard to the regulation of phosphate excretion.

In addition to a possible site of phosphate secretion in the proximal tubule, phosphate secretion has also been postulated for the terminal nephron by Boudry and associates (16). We

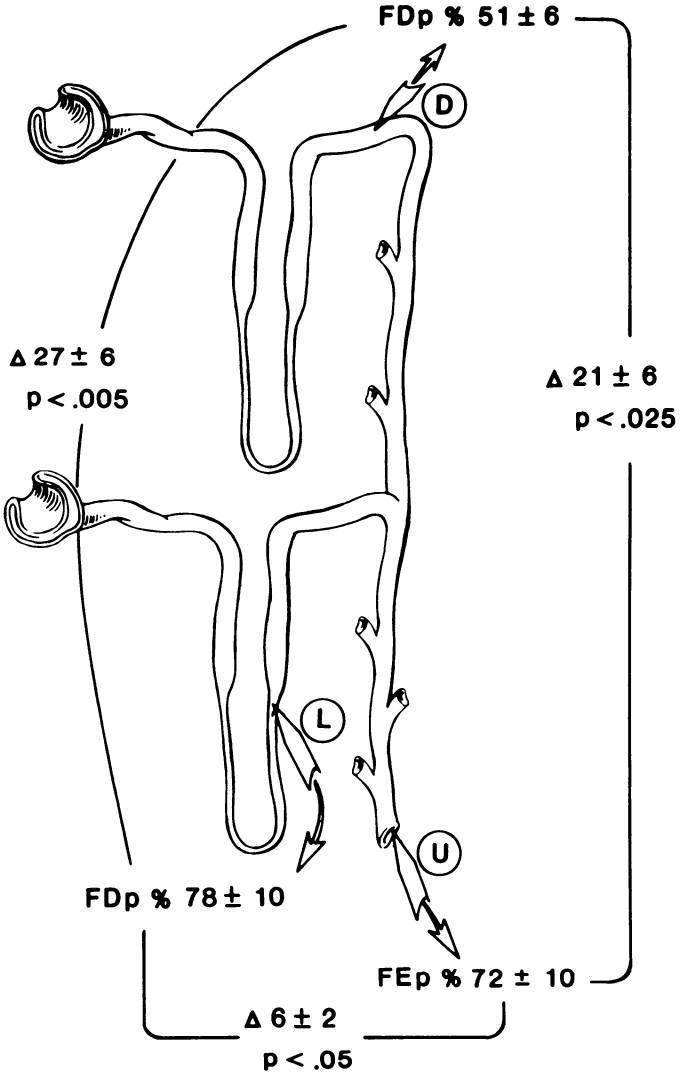

Fig. 10: The fractional deliveries of phosphate to superficial distal tubules, ascending limits of the loop of Henle in deep nephrons, and urine are shown for phosphate loaded rats (17).

confirmed Boudry's results and found that in volume expanded phosphate loaded animals that the urinary excretion of phosphate was greater than the fractional delivery of phosphate in the superficial distal tubule. Again, two possibilities could account for the addition of phosphate to the terminal nephron. First, net phosphate secretion through the tubule wall or second, greater delivery of phosphate by deep nephrons than by superficial nephrons. Our approach was similar to that used for the heterogeneity of phosphate reabsorption issue (figure 10) (17). We found that the fractional delivery of phosphate to the deep nephrons was significantly greater than the fractional delivery of phosphate to the superficial nephrons. Since the fractional delivery of phosphate to the deep nephrons was greater than the fractional excretion of phosphate in the urine, nephron heterogeneity could account entirely for the apparent secretion. We cannot exclude a secretory component, however, since the precise distribution of superficial and deep nephrons in regard to phosphate reabsorption is unknown. We can say, however, that there is a definite heterogeneity of phosphate transport with deep nephrons delivering more phosphate than superficial nephrons and that phosphate secretion in the terminal segment is either absent or relatively small. To summarize our current view of the mechanism of phosphate reabsorption, phosphate trans-

port is predominantly a unidirectional outflux process in the proximal tubule with negligible influx components in either the proximal or terminal nephron segments (figure 11).

MECHANISM OF REABSORPTION (PHOSPHATE)

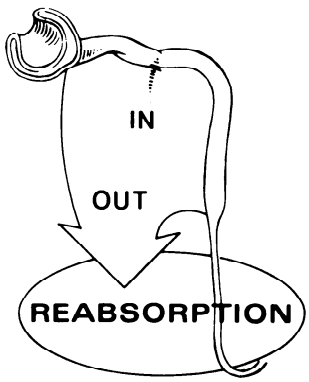

Fig. 11: Our current view of phosphate reabsorption, predominantly a unidirectional outflux process in the proximal tubule.

I would now like to turn our attention to the kinetic aspects of this phosphate transport process. The classic description of the relationship between phosphate transport and phosphate concentrations, as proposed by Pitts and associates, indicated that as phosphate concentrations were increased, phosphate reabsorption increased until some point where the transport capacity of the nephron was reached. Additional increases in phosphate concentration had no effect on phosphate reabsorption and the excess appeared in the urine. This concept was developed by the infusion of phosphate solutions into intact animals. At high phosphate concentrations it appeared that phosphate reabsorption must be inhibited since we could not demonstrate secretion. From clearance experiments in intact animals it is difficult to control for the effects of volume expansion, changes in GFR, changes in parathyroid and other hormone concentrations, and changes in plasma calcium concentration. For these reasons we examined the kinetics of phosphate transport at the single tubule level (18). Using microperfusion techniques we kept the peritubule environment constant and at the same time increase the concentration of phosphate from very low levels, difficult to achieve in intact animals, to very high levels. The results of these studies are shown in figure 12. In this figure the fractional disappearance of phosphate is plotted as a function of tubule length for several different phosphate concentrations. In the upper left hand figure the microperfusate contains only 0.1 mM/1 phosphate and an exponential decline in phosphate recovery is evident. Each point represents a single tubule. As higher concentrations were used, from 5-10 mM/1, the decline in phosphate recovery becomes linear. These findings are consistent with a transport process characterized by saturation kinetics. In figure 13 the transport rates expressed as picomoles per minute per millimeter as a function of phosphate concentration again suggest a system which can be described by saturation kinetics. Having examined the transport characteristics of the proximal convoluted tubule, we then turned our attention to the transport characteristics in the descending portion of the tubule including the terminal proximal tubule and pars recta. This was accomplished by microperfusion of the loop of Henle with the assumption

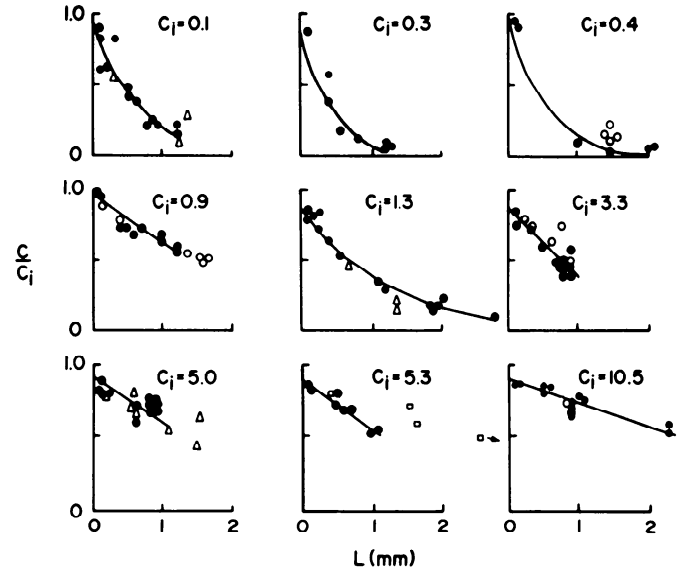

Fig. 12: The fractional disappearance of phosphate is plotted as a function of phosphate concentrations in the tubule lumen.

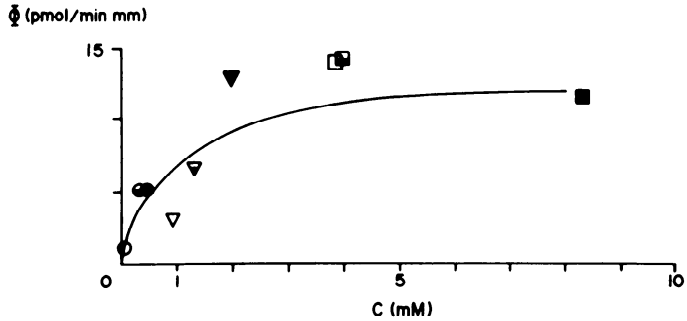

Fig. 13: Phosphate transport rates as a function of phosphate concentrations are summarized for the proximal convoluted tubule.

that phosphate transport was limited to the descending segments consistent with our earlier results. Again, this terminal segment of the proximal tubule also demonstrated transport characteristics which were consistent with saturation kinetics (figure 14). However, the transport characteristics differed quantitatively from those in the proximal convoluted tubule. In the proximal convoluted tubule, the maximal transport rate was found to be 14 picomoles per minute per millimeter

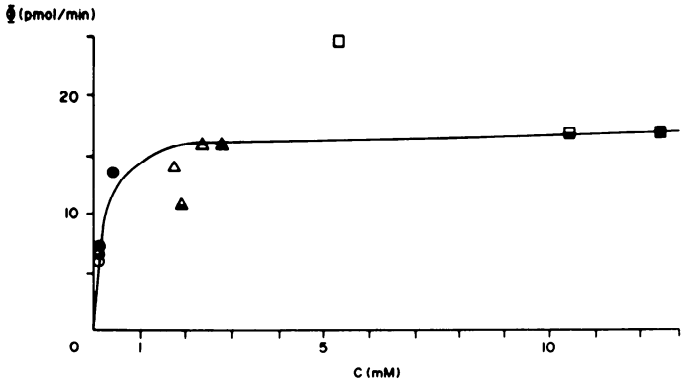

Fig. 14: Phosphate transport rates as a function of phosphate concentrations are summarized for the straight tubule (as derived from microperfusion of the loop of Henle).

(figure 15). In contrast, the terminal nephron segment had a lower maximal transport rate at 6 picomoles per minute per millimeter tubule length. This latter value is an estimate due to the imprecision in estimating the tubule length capable of phosphate transport in the loop of Henle. Similar results have been recently reported by Dennis and co-workers using the isolated perfused rabbit tubule (7). In addition to differences in maximal transport rate, there were differences in affinity of phosphate for the transport system. The Km, or phosphate concentration at which the transport system was half saturated, was 1 mM/1 for the proximal convoluted tubule and only 0.2 mM/1 for the terminal proximal segment. Thus these different segments of the nephron display unique transport characteristics. The very high affinity of the phosphate reabsorptive process in the terminal proximal nephron may account for the low fractional excretions of phosphate achieved in acutely thyroparathyroidectomized animals. Furthermore, this observation and the comparably low maximal transport rate for the segment may explain why modest increases in plasma phosphate concentrations in chronically thyroparathyroidectomized animals results in increases in fractional phosphate excretion and return to phosphate balance. Thus the high affinity and limited transport capacity allows for an efficient regulation of phosphate concentration even in the absence of parathyroid hormone. In intact animals however, parathyroid hormone regulates proximal phosphate reabsorption. Indeed parathyroid hormone decreases phosphate transport by the proximal tubule and our current studies are directed toward the conditions affecting the responsiveness of this tubule segment to the hormone (4).

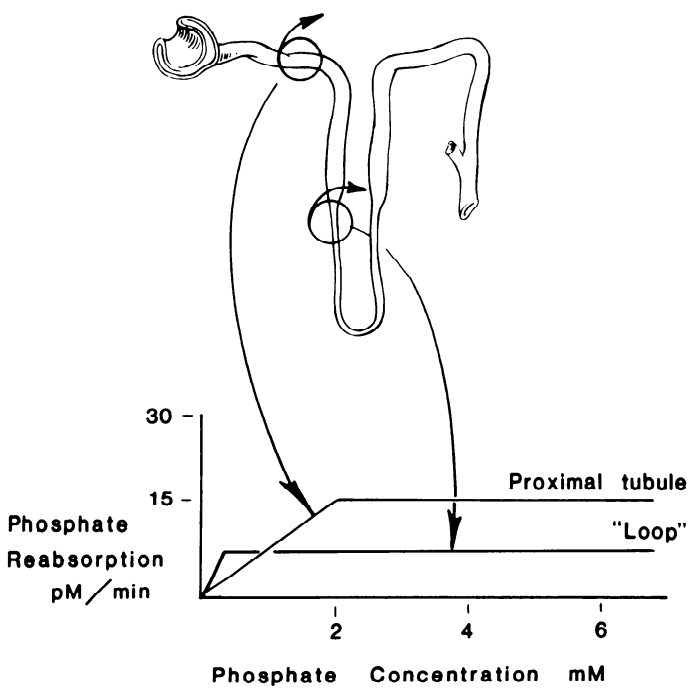

Fig. 15: A schematic representation of phosphate transport in the proximal convoluted and straight tubules is shown as a function of phosphate concentration.

In summary, most, and perhaps all, phosphate is reabsorbed in the proximal convoluted and straight tubules. Deep nephrons respond through a wider range of phosphate regulation than superficial nephrons with more avid phosphate reabsorption or rejection than superficial nephrons. Phosphate transport is a predominately unidirectional reabsorptive process which can be described by saturation kinetics. The terminal proximal tubule has a lower maximal transport capacity and higher affinity for phosphate.

Our conclusions, particularly in regard to the absence of phosphate transport in the terminal nephron are controversial. For a critical evaluation of this issue please see our recent editorial which discusses the important work of others in detail (3).

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Dennis E. Jackson to Dr. Dill:

I am delighted to receive your letter. I am ninety-eight years old and I have been here since March 1, 1976. I am in fairly good health and I have no special aches or pains. But I am greatly limited in doing any scientific work. This worries me greatly. I have in particular wanted to do some work on cancer. When I was five years old (in Lutesville, Missouri) I saw my mother die (pneumonia?), and a few months later, back in Indiana my aunt Mary just casually told me one day that cancer was the only disease for which there was no cure. That was in 1883. I am also uneasy about getting a paper published even if I should get one written. I have no connection with any medical journal now and no editor might have any interest in anything I could write. I have lost all connection with my old home back in Cincinnati. I have not met anyone here who has any interest in my field of work. I hope all is going well with you. (Dr. Jackson's address is 3706 Forest Grove Drive, Annandale, Virginia 22003).

Andre Cournand to Hy Mayerson:

Thank you for your birthday greeting. In fact, by using a display of mirrors, I can read the reflected, inverted image of my official age as 28. Indeed, in many respects, I act as if it were my true age, and try to deny the qualifications of Emeritus or Senior. In line with this attitude, I became interested 10 years ago, in a new career and this is exemplified by articles and lectures in the field of History and Sociology of science – you may soon read in a forthcoming number of *Science*, such a production. With kind regards.

Dwight Ingle to Hy Mayerson:

This year we will continue the practice of going to a different university town each winter. In December we will go to Chapel Hill for four months. We enjoyed Gainesville last winter but were saddened by the terminal illness of a much admired friend, Bob Pitts.

I give an occasional invited lecture, five this year. I have two papers in press. One is a biographic sketch of Anton J. Carlson. I have given an account of some aspects of his life and some happenings not covered by other biographical papers on Ajax.

Here is a Carlson story that I got from recordings by the late Lester Dragstedt. Dr. Carlson was invited to address a national assembly of women's clubs in Chicago. Being very busy he asked about the time his talk was scheduled to begin. He was there on time but the ladies hadn't finished their business meeting and it continued to drag along as Ajax became more and more exasperated. Finally the president introduced him and said that Professor Carlson would now give his address. He arose and said, "My address is 5228 Greenwood Avenue and I am going there now." And he did.

Although I continue to read I am out of touch with much of the progress in all of the sciences. But now, instead of responding to frustration by working harder, I rig my boat and go sailing.

Isolde Zeckwer to Hallowell Davis:

Many thanks to you and to the American Physiological Society for so kindly remembering me on my birthday. My permanent address is St. Joseph's Manor, 1616 Huntingdon Pike, Meadowbrook, PA 19046.

Erma Smith to Dr. Dill:

A birthday card from you is a most welcome tradition. Life in Kansas is never dull. As to weather – no cyclones in 1977 so far. Plenty of rain – good wheat crop. Very best wishes.

Ruth Conklin to Hal:

It's always very pleasant to have a card from the Physiological Society on my birthday. Thank you for remembering me. It's pleasant, too, to hear from you and be reminded of the Harvard Department of Physiology and School of Public Health.

I have been immersed all summer in problems of scheduling driver-visitors for Meals on Wheels. This all-volunteer organization does an outstanding job, but when vacation time comes many volunteers find it impossible or undesirable to continue working – ergo, a dearth of drivers. I've been doing it (driving) myself for about five years, and I know what the service means to a great many people. I'm very thankful to be on the giving, rather than the receiving end. Best wishes and thanks to you.

James D. Hardy to Hy:

Thanks so much for your note. I have been surprised at the interest shown by readers of *The Physiologist* in the accounts sent in by retired physiologists. Of course, there comes a time when it is only the retired physiologists who are known personally to many of us and naturally we are interested in our old friends, but also younger physiologists seem to be interested in what has happened to those whose papers are still remembered and read. A lot of our papers are forgotten naturally, which seems a pity, because one sees a substantial amount of effort spent "rediscovering the wheel." So perhaps these letters from those of us who have retired from the firing line have some value other than amusement.

I still come into the laboratory every day but my scientific output is quite small. I envy my colleagues who have successfully continued in both research and teaching. From time to time I become interested in the history of the field in which I have worked and have recently come onto one of the first arguments in the field of physiological thermoregulation – an argument which still holds some interest today. The question is, who *first* discovered the importance of the brain stem (hypothalamic area) in the control of body temperature? Simple question, not so simple to answer. That something was amiss was apparent when I noticed two articles in *Pflügers Archiv 1885,* with the same title "Die Beziehungen des Gehirns zur Korperwärme und zum Fieber," one by Aronsohn and Sachs and the other by Charles Richet. The first article was the original report by Aronsohn and Sachs describing their experiments reported to the "Physiologischen Gesellschaft zur Berlin," 31 October 1884, and the second was Richet's paper calling attention to his report of the "heat puncture" fever experiments of 29 March 1884, to the Societe de Biologie. Aronsohn and Sachs replied to this note calling attention to the work already reported by Isaac Ott of the United States in April 1884, in the *J. Nerv. and Mental Disease*. Ott never accepted Richet's work because of the lack of anatomical detail in Richet's paper, a criticism also made by Aronsohn and Sachs. So whereas it is clear that *three* laboratories in 1884 independently discovered that the brain stem was an important center of thermoregulation, it is not easy to identify who was actually first. I have always referred to Ott and

Richet, others refer to Aronsohn and Sachs and still others to all three. It is easy to see why the discussion has lasted almost one hundred years!

John Bateman to Hal Davis:

The letter from the Committee on Senior Physiologists, with your welcome personal note, is dated 6 September 1976. Very uncouth of me not to have responded at once; uncouth and also deliberate. In September 1976 I was within hailing distance of the end of my contract, and I thought I'd put off my letter to you until finally around the bend.

It was good to know of your pleasant memories of the Office of Naval Research. I too have reason to appreciate ONR with some warmth, having been taken up on a temporary basis after termination of my job with the European Research Office of the U.S. Army. The initial appointment as "re-employed annuitant" in the U.S. Civil Service was for one year in the London office. This was extended for a six-month period which ended on April 30. It has been a good experience. As a member of a congenial group of liaison scientists, most of them on sabbaticals from US universities, I have been exploring some of the European scene pretty much in my own way, guided by an attractive combination of personal preference and dutiful concern for the Navy's research needs. The *modus operandi*, as you know, is to talk with scientists in the lab or at meetings and to write reports for ONRL publications; these are widely circulated in the States. I have done my share of writing for the current publications and have had the useful experience of serving a four-month stint as Technical Editor of ESN.

My lapse into full retirement finds me still residing in London, tidying up a few loose ends of writing and doing the occasional bit of new reporting for ONRL. Some of my early interests are reviving, especially in the biological effects of weak non-ionizing electromagnetic fields and in thermal (i.e. non-isothermal) diffusion in biological systems. I am also trying to keep an eye on European attitudes to genetic engineering. However, I cannot really claim much scientific respectability after seven years away from the laboratory; there is an element of self-indulgence in all this. Anyway, it is quite nice to find oneself in a position to neglect science in favor of more music!

All the same, I would be very glad to hear from any of your readers who may know of interesting jobs, steady or unsteady, in international science organization, technical editing, translating, coordinating, or reporting critically, waiting to be filled by someone with my sort of background.

With the two latest of *The Physiologist* before me I can't help wondering how long it will be before the senior physiologists take over an entire issue or, perhaps, start a new journal for their often very lively reminiscences. It makes me feel a bit guilty at having written at rather immodest length. (Dr. Bateman's address is 6 Colney Hatch Lane, Muswell Hill, London N10 1DU.)

Owen H. Wangensteen to Hy Mayerson:

What a delightful plan the American Physiological Society has evolved of writing to its superannuated members on the occasion of their birthdays. It is, indeed, a scheme worthy of emulation. I am now in my 80th year and still active in my 11th year of superannuation from the active Faculty of the University of Minnesota. My wife and I still find life pleasant and rewarding. We are both in reasonably good health and have no complaints other than a few minor handicaps, the constant companion of increasing years. Again many thanks and with cordial good wishes.

Dr. **Harvey L. White,** 81 years old, died October 1, 1977 in Vinita, Oklahoma. Dr. White retired as head of the department of physiology at Washington University School of Medicine in 1965. During World War II, he was an Army hospital administrator in the Near East, Africa, and Alaska, retiring with the rank of colonel. Dr. White is survived by his daughter, Mrs. Helen Gatlin of Vinita, and a sister, Mrs. Jerome Link of University City.

Harlow W. Ades died October 12, 1977 in Washington, D.C. while attending a meeting.

Harlow was born in Rockford, Illinois, December 31st 1911. He was educated at the University of Illinois at Urbana, earning his Ph.D. in zoology and psychology in 1938. He taught briefly at Illinois and at Johns Hopkins, and in 1939 he went to the Anatomy Department at Emory Medical School. He became professor and chairman of that department from 1947 to 1954. Until 1965 he was head of the Neurological Science Research Division of the U.S. Navy School of Aviation Medicine at Pensacola. In 1965 he returned to the University of Illinois where he was professor of Electrical Engineering, Biophysics, Physiology and Psychology until his retirement in 1976. At the time of his death he was Research Scholar at the University of West Florida.

In 1975, Harlow was awarded the honorary degree of Doctor of Medicine by the University of Uppsala in Sweden. He was a member of many professional societies, including the American Association of Anatomists, the American Physiological Society, the American Neurological Association and the Society of the Sigma Xi.

Harlow's research, begun under the direction of Fred Mettler and E. A. Culler at Illinois, was largely devoted to the study of the inner ear and the central auditory pathways. He was the author of numerous papers and monographs. In recent years he spent some time in Sweden, collaborating with Hans Engstrom at Uppsala, to producing magnificent electron micrographs of the inner ear.

Dr. Ades is survived by a widow, six children, and one brother.

Stephen W. Gray, Ph.D.