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APS MEMBERSHIP STATUS

September 1974

Regular Members	3737
Retired Members	287
Honorary Members	14
Associate Members	461
Retired Associate	1
	4500

DEATHS SINCE SPRING MEETING 1974

Harold O. Burdick - 7/8/74 - Chrmn, Dept. Biol., Alfred University,
Alfred, N.Y. (Retired Member)

Thomas F. Dougherty - 2/6/74 - Head, Dept. Anat. & Radiobiol.,
University of Utah, Salt Lake City

Frank A. Graig - 6/12/74 - Director, Division of Med., Grasslands
Hospital, Valhalla, N.Y.

Albert H. Hegnauer - 12/25/73 - Scientific Advisor, USA Research
Institute of Environmental Medicine, Natick (Retired Member)

Donald A. McDonald - 5/24/73 - Prof. of Physiol. & Biophys., Univ.
of Alabama, Birmingham

Leonard B. Nice - 1/18/74 - Prof. Emeritus Physiol. & Pharmacol.,
Chicago Medical School (Retired Member)

C. Robert Olsen - 12/31/73 - Assoc. Prof. Med., Univ. of California,
and VA Wadsworth Hospital Ctr., Los Angeles

Syrrel S. Wilks - 4/27/74 - Sr. Scientist, Environmental Systems
Branch, USAF Sch. Aerospace Med., Brooks AFB, San Antonio

The following members were granted retired status at the 1974
Fall Meeting:

J. T. Bradbury	C. E. Lane	S. R. Rosenthal
Simon Dworkin	E. W. McChesney	G. M. Roth
O. G. Edholm	G. P. McCouch	J. A. Shannon
C. L. Fox, Jr.	C. A. Maaske	E. A. Spiegel
A. S. Freedberg	A. T. Milhorat	J. C. Stickney
R. O. Greep	David Nachmansohn	O. E. Tauber
H. B. Hale	E. W. Page	A. E. Walker
H. K. Hartline	E. P. Reineke	E. G. Weir
Jessamine Hilliard	Paul Reznikoff	
E. G. Kokas	D. McK. Rioch	

NEWLY ELECTED MEMBERS

The following, nominated by the Council, were elected to member-
ship in the American Physiological Society at the Fall Meeting, 1974.

FULL MEMBERS

ARMOUR, John A.: Res. Assoc., Stritch Sch. Med., Maywood, Ill.
AZARNIA, Roobik: Res. Asst. Prof., Univ. of Miami Sch. Med.

- BAJPAI, Praphulla K.: Assoc. Prof., Univ. of Dayton
- BAKER, Lee E.: Assoc. Prof., Baylor Coll. of Med., Houston
- BERNAUER, E.M.: Assoc. Prof., Univ. of California, Davis
- BOYLE, Joseph III: Assoc. Prof., Coll. Med. & Dent., N.J. Med. Sch.
- BRADLEY, R.M.: Asst. Prof., Univ. of Michigan Sch. of Dent.
- BRAUN, Eldon J.: Asst. Prof., Univ. of Arizona Coll. Med., Tucson
- BRAVERMAN, Berton: Asst. Prof., Loyola Univ. Stritch Sch. Med.
- BRIGHAM, Kenneth L.: Asst. Prof., Dir. Pulmonary Res. Vanderbilt Univ. Hosp.
- BURICH, Raymond L.: Asst. Prof., Univ. of Missouri Dental Sch., Kansas City
- BUSE, Maria G.: Prof., Med. Univ. of South Carolina, Charleston
- CASTELLUCCI, Vincent F.: Asst. Prof., New York Univ. Med. Ctr.
- CHERTOK, Robert J.: Asst. Prof., Jackson State Coll., Jackson, Miss.
- COWAN, John S.: Asst. Prof., Faculty of Med., Univ. of Ottawa
- CRAWSHAW, Larry I.: Asst. Fellow & Asst. Prof., J. B. Pierce Fndn. & Yale Univ.
- DALLMAN, Mary F.: Asst. Prof., Univ. of California, San Francisco
- DeHAAN, Robert L.: Prof., Emory Univ., Atlanta, Ga.
- DELIVORIA-PAPADOPOULOS, Maria: Assoc. Prof., Univ. of Pennsylvania Sch. Med., Philadelphia
- EDINGER, Henry M.: Asst. Prof., New Jersey Med. Sch., Newark
- EDWARDS, Brian R.: Asst. Prof., Dartmouth Med. Sch.
- ENGEL, Ludwig A.: Res. Fellow & Asst. Prof., McGill University
- FAWCETT, Colvin P.: Asst. Prof., Univ. of Texas Southwestern Med. Sch., Dallas
- FERNSTROM, John D.: Asst. Prof., Mass. Inst. Technol., Cambridge
- FREEMAN, Marc E.: Asst. Prof., Florida State Univ., Tallahassee
- FROMM, David: Asst. Prof., Beth Israel Hosp., Boston
- GEDDES, Leslie A.: Prof., Baylor Coll. Med. & Texas A & M
- GIBBS, James: Asst. Prof., New York Hosp.- Cornell Med. Ctr.
- GOLDSMITH, Ralph S.: Dir. & Assoc. Prof., Mayo Foundation
- GONZALEZ-SERRATOS, Hugo: Vis. Assoc. Prof., Univ. of Rochester
- GREENE, Reginald: Asst. Prof., Harvard Med. Sch. & Mass. Gen. Hosp.
- GROSSMAN, William: Asst. Prof. & Dir., Univ. of North Carolina
- GUNN, Robert B.: Asst. Prof., Duke Univ. Med. Ctr., Durham, N.C.
- GUREWICH, Victor: Dir., Lemuel Shattuck Hosp., Jamaica Plain, MA
- HACKETT, John T.: Asst. Prof., Univ. of Virginia Sch. Med.
- HELLER, Horace C.: Asst. Prof., Stanford University
- HENDRICH, Chester E.: Assoc. Prof., Med. Coll. of Georgia, Augusta
- HENEGHAN, James B.: Assoc. Prof., Louisiana State Univ. Med. Ctr., New Orleans
- HERMAN, Clifford M.: Head of Div., Assoc. Prof., NNMC & George Washington Univ.
- HOWLAND, Howard C.: Asst. Prof., Cornell University, Ithaca
- JONES, David R.: Assoc. Prof., Univ. of British Columbia, Vancouver
- KAFER, Enid R.: Assoc. Prof., Univ. of North Carolina, Chapel Hill
- KARSCH, Fred J.: Asst. Prof., Univ. of Michigan, Ann Arbor
- KELLY, Patrick J.: Prof. & Consulting Phys., Mayo Clinic
- KEYES, Paul L.: Asst. Prof., Univ. of Michigan, Ann Arbor
- KIRBY, Albert C.: Asst. Prof., Case Western Reserve Univ.
- KLOCKE, R.A.: Asst. Prof., State Univ. of N.Y., Buffalo
- KNUDSON, Ronald J.: Assoc. Prof., Univ. of Arizona Coll. Med., Tucson

- KOPETZKY, Michael T.: Assoc. Prof., Texas Tech. Univ., Sch. Med.
Lubbock, Texas
- KOTAS, Robert V.: Dir., W. C. Warren Med. Res. Ctr., Tulsa
- LAIRD, Cleve W.: Res. Assoc., Bio-Research Inst., Inc., Cambridge
- LEACH, Carolyn S.: Head. Endocrine Lab., Env. Physiol., Lyndon B.
Johnson Space Ctr.
- LEBOVITZ, Robert M.: Asst. Prof., Univ. of Texas Southwestern Med.
Sch., Dallas
- LENARD, John: Assoc. Prof., CMDNJ-Rutgers Med. Sch., Piscataway
- LICHTMAN, M.A.: Assoc. Prof., Univ. of Rochester Med. Ctr.
- LIEBOW, Charles: Asst. Prof., Cornell Univ. Med. Coll.
- LILES, S.L.: Asst. Prof., Louisiana State Univ. Med. Ctr., New Orleans
- LITTLE, John R.: Assoc. Prof., Louisiana State Univ. Med. Ctr.,
New Orleans
- LONGNECKER, David E.: Assoc. Prof., Univ. of Virginia Med. Ctr.
- LOOSE, Leland D.: Asst. Prof., Tulane Univ. Sch. Med., New Orleans
- LOWE, Robert F.: Asst. Prof., Tulane Univ. Sch. Med., New Orleans
- LUKE, Robert G.: Assoc. Prof., Univ. of Kentucky Med. Ctr., Lexington
- LUTHERER, Lorenz O.: Asst. Prof., Texas Tech. Univ. Sch. Med.,
Lubbock
- MANN, Michael D.: Asst. Prof., Univ. of Nebraska Med Ctr., Omaha
- MARTIN, Richard R.: Asst. Prof. & Attending Phys., McGill Univ. &
Royal Victoria Hosp.
- MELA, Leena M.: Asst. Prof., Univ. of Pennsylvania & Univ. Hosp.
- MENDOZA, Stanley A.: Assoc. Prof., Univ. of California, San Diego,
La Jolla
- MIKULECKY, Donald C.: Assoc. Prof., Med. Coll. of Virginia, Richmond
- MONETTE, Francis C.: Asst. Prof., Boston University
- MOSS, Robert L.: Asst. Prof., Univ. of Texas Southwestern Med. Sch.
- NATHAN, Marc A.: Asst. Prof. & Adjunct Asst. Prof., Cornell Univ.
- NICOLL, ROGER: Res. Assoc. Prof., Univ. of Buffalo, Amherst, N.Y.
- NISHIMURA, Hiroko: Asst. Prof., Univ. of Tennessee Med. Units
- NOYES, David H.: Asst. Prof., Ohio State Univ., Columbus
- OLSZOWKA, Albert J.: Asst. Prof., State Univ., NY, Buffalo
- ONDO, Jerome G.: Asst. Prof., Med. Univ. of South Carolina, Charleston
- OSMOND, Daniel H.: Asst. Prof., Univ. of Toronto
- PALEK, Jiri: Assoc. Invest., & Asst. Clin. Prof., Red Cell Lab, Harvard
- PAUL, Lawrence T.: Assoc. Prof., Ohio State Univ., Columbus
- PICKRELL, John A.: Physiologist-Biochemist, Lovelace Fndn, Albuquerque
- POLIMENI, Philip I.: Res. Assoc. & Asst. Prof., Univ. of Chicago
- POLLACK, Gerald H.: Assoc. Prof., Univ. Washington, Seattle
- PRIANO, Lawrence L.: Res. Instructor, Univ. of Texas, Galveston
- RANNELS, Donald E., Jr.: Instructor, Pennsylvania State Univ., Hershey
- REIVICH, Martin: Prof., University of Pennsylvania
- SAR, Madhabananda: Res. Assoc., Univ. of North Carolina, Chapel Hill
- SCARPA, Antonio: Asst. Prof., Johnson Res. Fndn., & Univ. Pennsylvania
- SCHNEIDER, Martin F.: Asst. Prof., Univ. of Rochester Sch. Med.
- SCHUMER, William: Prof. & Chief Surg. Services, Univ. of Illinois
Coll. Med., & VA West Side Hosp.
- SCHWARTZ, John H.: Res. Internist, Walter Reed Army Inst. Res.
- SEN, Subha: Staff Res. Div., Cleveland Clinic Fndn.
- SERNKA, Thomas J.: Asst. Prof., Louisiana State Univ. Sch. Med.,
Shreveport

- SHA'AFI, Ramadan I.: Assoc. Prof., Univ. of Connecticut, Farmington
 SHERMAN, S.M.: Asst. Prof. Univ. of Virginia Sch. Med.
 SHRAGER, Peter G.: Asst. Prof., Univ. of Rochester Sch. Med.
 STONE, Eric A.: Asst. Prof., New York Univ. Med. Ctr.
 TACKER, Willis A., Jr.: Asst. Prof., Baylor Coll. Med., Houston
 TRIMBLE, Mary E.: Asst. Prof. & Res. Biologist, State Univ. New York, Upstate Med. Ctr., & VA Hosp., Syracuse
 VALE, Wylie W., Jr.: Senior Res. Assoc., Salk Inst., San Diego
 WAGNER, Jeames A.: Asst. Res. Physiologist, Univ. of California, Santa Barbara
 WEISBRODT, Norman W.: Asst. Prof., Univ. of Texas Med. Sch., Houston
 WEISFELDT, Myron L.: Asst. Prof. & Guest Invest., Johns Hopkins Hosp. & Gerontology Res. Ctr.
 WELSCH, Frank: Asst. Prof., Michigan State Univ., East Lansing
 WEXLER, Bernard C.: Dir. & Assoc. Prof., May Inst., & Univ. of Cincinnati
 WIEDMEIER, Vernon T.: Asst. Prof., Med. Coll. of Georgia, Augusta
 WILL, James A.: Assoc. Prof., Univ. of Wisconsin
 YAMASHIRO, Stanley M.: Asst. Prof., Univ. of Southern California, Los Angeles
 ZIMMERMANN, Emery G.: Asst. Prof., Univ. of Calif. Med. Sch., Los Angeles
 ZIPES, Douglas P.: Assoc. Prof. & Dir. of Res., Indiana Univ. Sch. Med.

ASSOCIATE MEMBERS

- BALIN, Martin S.: Instr., Chicago Coll. Osteopathic Med.
 BARFUSS, D.W.: Teaching Asst., Univ. of Arizona
 BASSI, Sukh Dev: Asst. Prof. Biol., Benedictine Coll., Atchison, KS
 BLANTZ, Roland C.: Asst. Prof. Med., Univ. Calif., San Diego
 BLOXHAM, D.D.: Res. Physiol., St. Luke's Hosp., Kansas City
 BROWN, D.J.: Lecturer, University of Wisconsin
 BUCHANAN, B.J.: Predoct. Trainee, Loyola Univ. Stritch Sch. Med.
 BUIST, Aline S.: Asst. Prof. Med., Univ. of Oregon., Portland
 CAREW, T.J.: Instr., New York Univ. Sch. Med.
 CARLSON, S.M.: Predoct. Student, Johns Hopkins Univ.
 CHEN, Chun-fan: Asst. Prof. Biol. Sci., Florida Internat. Univ., Miami
 CIPRIANO, L.F.: Res. Physiol., Lovelace Fndn. Med. Res., Albuquerque
 COLTON, Carol K.: Faculty Affiliate, Univ. of Montana, Missoula
 DOUGHERTY, S.B.: Assoc. Prof., Monroe Comm. Coll., Rochester
 ENOCHS, M.R.: Res. Assoc., Univ. of Texas, Houston
 FEIN, J.M.: Div. Head, Armed Forces Radiobiol. Res. Inst., Bethesda
 FISHER, M.J.: Postdoct. Fellow, Univ. of Florida, Gainesville
 FLYNN, J.T.: Grad. Student, Hahnemann Med. Coll.
 FRAY, C.S.: Grad. Student, Teaching Fellow, Harvard Med. Sch.
 GARZA-QUINTERO, Ricardo: Grad. Student, Univ. of Rochester
 GREENE, C.H.: Lab. Supervisor & Res. Asst., Jefferson Med. Coll.
 GUDEWICZ, P.W.: Predoct. Trainee, Loyola Univ., Stritch Sch. Med.
 HAGEMAN, Gilbert R.: Grad. Student, Loyola Univ., Stritch Sch. Med.
 HANSON, Peter G.: University Physician, New Mexico State Univ.
 HARGENS, Alan R.: Am. Heart Assoc. Adv. Res. Fellow, Univ. of California, San Diego

- HELLER, Lois J.: Asst. Prof. & Asst. Dean, Univ. of Minnesota Sch. Med.
- HENRY, James L.: Postdoct. Fellow, Res. in Anesthesia, McGill Univ.
- INGOGLIA, N.A.: Asst. Prof., New Jersey Med. Sch., Newark
- IRISH, J. McC. III: Res. Asst., Arizona Med. Ctr., Tucson
- JACOBS, H. Kurt: Postdoct. Fellow, Res. Assoc., Loyola Univ., Stritch Sch. Med.
- KOLBECK, Ralph C.: Instr., Med. Coll. of Georgia, Augusta
- LOEPPKY, Jack A.: Res. Assoc., Lovelace Fndn. Med. Res.
- McMURTRY, Ivan F.: Postdoct. Fellow, Univ. of Colorado Med. Ctr., Denver
- MEERBAUM, Samuel: Sr. Res. Sci., Cedars-Sinai Med. Ctr., L. A.
- MILLARD, Ronald W.: Res. Assoc., Maine Med. Ctr., Portland
- MODELL, Harold I.: Asst. Prof., State Univ. New York, Buffalo
- MOORE-EDE, Martin C.: Postdoct. Fellow, Harvard Med. Sch.
- MORTILLARO, N.A.: Asst. Prof., Univ. South Alabama, Mobile
- MUKHOPADHYAY, Arun K.: Res. Assoc., Univ. of Texas Med. Sch., Houston
- NIRDLINGER, Edwin L.: Med. Student, Univ. of Illinois, Chicago
- POLLOCK, George P.: Asst. Prof., Loyola Univ., Stritch Sch. Med.
- PRITCHARD, John B.: Asst. Prof. Physiol., Med. Univ. of South Carolina, Charleston
- RAWSON, Jon M. R.: Grad. Asst., Michigan State Univ., East Lansing
- ROBERTS, Lou Ann: Instr., Texas Tech. Univ. Sch. Med., Lubbock
- RUBIN, Marilyn B.: Assoc. Prof. Nursing, St. Louis University
- SANDER, Linda D.: Res. Assoc., Univ. of Texas, Houston
- SLICK, Gary L.: Renal-Hypertension Fellow, Univ. of Iowa
- STAUFFER, Edward K.: Ph.D. Candidate, Univ. of Arizona Coll. Med.
- TUCKER, Alan: Res. Assoc., Univ. of Colorado Med. Ctr., Denver
- WALSH, Ralph T.: Asst. Prof. Physiol., Wayne State Univ. Sch. Med., Detroit
- WATT, Edward W.: Res. Assoc., Emory Univ. Sch. Med.
-

THE AMERICAN PHYSIOLOGICAL SOCIETY

Founded December 30, 1887; Incorporated June 2, 1923

OFFICERS 1974-75

President - A. C. Guyton, University of Mississippi, Jackson
President-Elect - B. M. Schmidt-Nielsen, Mt. Desert Island Biological
Laboratory, Salsbury Cove, Maine
Past-President - D. C. Tosteson, Duke University, Durham, North
Carolina
Council - A. C. Guyton (1976), B. M. Schmidt-Nielsen (1977), D. C.
Tosteson (1975), J. O. Davis (1978), Jere Mead (1977), D. F. Bohr
(1976), P. F. Curran (1975)
Executive Secretary-Treasurer - O. E. Reynolds, 9650 Rockville Pike,
Bethesda, Maryland 20014

STANDING COMMITTEES

Publications - P. F. Curran (1975), Chairman; Paul Horowicz (1977),
A. P. Fishman (1975). Ex officio - H. E. Morgan, Physiological
Reviews; E. V. Evarts, Journal of Neurophysiology; J. R.
Pappenheimer, Handbooks; O. E. Reynolds, Executive Secretary-
Treasurer, Editor of The Physiologist and Physiology Teacher;
Sara F. Leslie, Publications Manager and Executive Editor (1974);
S. R. Geiger, Executive Editor for Handbooks (Effective January
1975 - Publications Manager and Executive Editor).
Finance - E. B. Brown, Jr. (1977), Chairman; C. F. Code (1976),
J. R. Brobeck (1975). Ex officio - O. E. Reynolds, Executive
Secretary-Treasurer; W. A. Sonnenberg, Business Manager; P. F.
Curran, Chairman of Publications Committee.
Education - J. L. Kostyo (1976), Chairman; F. N. Briggs (1977),
R. B. Gunn (1977), Leonard Share (1976), L. S. Jefferson (1975),
P. B. Dunham (1975); Representatives from the Society of General
Physiologists - B. A. Curtis (1975), Benjamin Kaminer (1976);
Representative from the Division of Comparative Physiology and Bio-
chemistry of The American Society of Zoologists - Patricia N.
Farnsworth (1975). Ex officio - O. E. Reynolds, Education Officer.
Membership Advisory - B. R. Duling (1975), Chairman; P. C. Johnson
(1977), E. R. Ramey (1976), N. C. Staub (1976), B. D. Lindley (1976),
C. M. Armstrong (1975).
Program Advisory - F. F. Jobsis (1975), Chairman; Claude Lenfant
(1976), G. G. Somjen (1976), F. G. Knox (1976), S. D. Gray (1975),
H. M. Goodman (1975), S. Y. Botelho (1977).
Public Affairs and Public Information - R. K. Crane (1975), Chairman;
J. A. Holloway (1977), Marian S. Kafka (1977), Ping Lee (1977), L.D.
Longo (1976).
Senior Physiologists - D. B. Dill (1977), Chairman; H. S. Mayerson
(1977), Hallowell Davis (1975), M. B. Visscher (1975).
Perkins Memorial Fund - J. R. Pappenheimer (1980), Chairman;
Hermann Rahn (1977), E. E. Selkurt (1976), D. F. Bohr (1975).
Ex officio - Mrs. J. F. Perkins, Jr., O. E. Reynolds.

Porter Physiology Development Program - A. C. Barger (1977) and E. W. Hawthorne (1977), Co-Chairmen; Melvyn Lieberman (1977), E. P. Radford (1976), R. D. Berlin (1976), Harvey Sparks, Jr., (1975), Clem Russ (1975).
Animal Care and Experimentation - W. J. Tietz, Jr. (1977), Chairman; G. H. Stabenfeldt (1977), J. W. Crowell (1976), L. S. Lilienfield (1975).
Legal Council - W. H. Pattison, Jr.

REPRESENTATIVES TO OTHER ORGANIZATIONS

Federation Board - B. M. Schmidt-Nielsen (1977), A. C. Guyton (1976), D. C. Tosteson (1975).
Federation Executive Committee - A. C. Guyton (1976).
Federation Life Sciences Advisory Committee - F. P. Ferguson (1976).
Federation Publications Committee - C. S. Tidball (1976).
Federation Meetings Committee - F. E. Yates (1977).
Federation Program Committee - O. E. Reynolds
Federation Public Affairs Committee - L. D. Longo (1976).
Federation Public Information Committee - R. K. Crane (1975).
Executive Officers Advisory Committee of the Federation - O. E. Reynolds
U.S. National Committee for International Union of Physiological Sciences - J. M. Brookhart (1975), J. R. Brobeck (1976), A. C. Barger (1975), A. C. Guyton (1979).
National Research Council - Div. of Biological Sciences - Herbert Levitan (1977); Div. of Medical Sciences - Jack Orloff (1977).
American Association for the Advancement of Science - D. S. Gann (Dec. 1976), L. S. Lilienfield (Dec. 1976), O. E. Reynolds (Dec. 1976).
National Society for Medical Research - W. J. Tietz, Jr. (1977).
American Society for Information Science - S. R. Geiger (1976).
Council of Academic Societies of the Association of American Medical Colleges - R. M. Berne (1978), W. G. Van der Kloot (1976).

PUBLICATIONS

Publications Committee - P. F. Curran (1975), Chairman; Paul Horowicz (1977), A. P. Fishman (1975).
Publications Manager and Executive Editor - Sara F. Leslie (Effective January 1975 - S. R. Geiger).
American Journal of Physiology and Journal of Applied Physiology - Section Editors - D. F. Bohr, F. J. Klocke, W. W. Parmley (Circulation); F. G. Hoppin, Jr., T. C. Lloyd, Jr. (Respiration); J. H. Dirks, W. E. Lassiter (Renal and Electrolyte Physiology); S. G. Schultz (Gastrointestinal Physiology); D. S. Gann, N. S. Halmi (Endocrinology and Metabolism); E. R. Buskirk, A. P. Gagge (Environmental Physiology); L. B. Kirschner (Comparative and General Physiology); O. A. Smith (Neurobiology); H. M. Ranney (Hematology); F. N. Briggs (Muscle Physiology).
Journal of Neurophysiology - E. V. Evarts, Chief Editor
Physiological Reviews - H. E. Morgan, Editor; R. C. Rose, Associate Editor; D. S. Parsons, Chairman, European Committee.
Handbooks of Physiology - J. R. Pappenheimer, Chairman Editorial Committee; S. R. Geiger, Executive Editor.

The Physiologist - O. E. Reynolds, Editor

The Physiology Teacher - O. E. Reynolds, Editor; W. D. DeHart,
Executive Editor

Physiology in Medicine - A. P. Fishman, Editor

PAST OFFICERS

Presidents - 1888 H. P. Bowditch. 1889-1890 S. W. Mitchell. 1891-1895 H. P. Bowditch. 1896-1904 R. H. Chittenden. 1905-1910 W. H. Howell. 1911-1913 S. J. Meltzer. 1914-1916 W. B. Cannon. 1917-1918 F. S. Lee. 1919-1920 W. P. Lombard. 1921-1922 J. J. R. MacLeod. 1923-1925 A. J. Carlson. 1926-1929 Joseph Erlanger. 1930-1932 W. J. Meek. 1933-1934 A. B. Luckhardt. 1935 C. W. Greene. 1936-1937 F. C. Mann. 1938-1939 W. E. Garrey. 1938 W. T. Porter, Honorary President. 1940-1941 A. C. Ivy. 1942-1945 P. Bard. 1946-1947 W. O. Fenn. 1948 M. B. Visscher. 1949 C. J. Wiggers. 1950 H. C. Bazett (April to July); D. B. Dill. 1951 R. W. Gerard. 1952 E. M. Landis. 1953 E. F. Adolph. 1954 H. E. Essex. 1955 W. F. Hamilton. 1956 A. C. Burton. 1957 L. N. Katz. 1958 H. Davis. 1959 R. F. Pitts. 1960 J. H. Comroe, Jr. 1961 H. W. Davenport. 1962 H. S. Mayerson. 1963 H. Rahn. 1964 J. R. Pappenheimer. 1965 J. M. Brookhart. 1966 R. E. Forster. 1967 R. W. Berliner. 1968 L. D. Carlson. 1969 C. L. Prosser. 1970 A. C. Barger. 1971 J. R. Brobeck. 1972 R. M. Berne. 1973 D. C. Tosteson.

Secretaries - 1888-1892 H. N. Martin. 1893-1894 W. P. Lombard. 1895-1903 F. S. Lee. 1904 W. T. Porter. 1905-1907 L. B. Mendel. 1908-1909 Reid Hunt. 1910-1914 A. J. Carlson. 1915-1923 C. W. Greene. 1924-1929 W. J. Meek. 1930 A. C. Redfield. 1931-1932 A. B. Luckhardt. 1933-1935 F. C. Mann. 1936-1939 A. C. Ivy. 1940-1941 Philip Bard. 1942 C. J. Wiggers. 1943-1946 W. O. Fenn. 1947 M. B. Visscher.

Treasurers - 1888-1892 H. N. Martin. 1893-1894 W. P. Lombard. 1895-1903 F. S. Lee. 1904 W. T. Porter. 1905-1912 W. B. Cannon. 1913-1923 Joseph Erlanger. 1924-1926 C. K. Drinker. 1927-1936 Alexander Forbes. 1937-1940 W. O. Fenn. 1941 C. J. Wiggers. 1942-1946 Hallowell Davis. 1947 D. B. Dill.

Executive Secretary-Treasurer - 1948-1956 M. O. Lee. 1956-1972 R. G. Daggs. 1973 - O. E. Reynolds.

CONSTITUTION AND BYLAWS

CONSTITUTION (Adopted at the 1953 Spring Meeting)

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 (Amended April 1974)

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, honorary members, associate members, retired 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. 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 4. Associate Members. Advanced graduate students in physiology at a predoctoral level, teachers of physiology, and investigators who have not yet had the opportunity or time to satisfy the requirements for regular membership 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 5. Retired Members. A regular or associate member who has reached the age of 65 years and/or is retired from regular employment may, upon application to Council be granted retired member status.

SECTION 6. 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 7. Nominations for Membership. Two regular members of the Society must join in proposing a person for regular membership, honorary membership or associate membership, in writing and on forms provided by the Executive Secretary-Treasurer. 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 sent to each regular member at least one month before the Spring and Fall meetings.

SECTION 8. Election of Members. Election of regular members, honorary members and associate 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 9. Voting. Only regular members shall be voting members. Honorary, retired and associate 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 Councilors 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 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 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 elections 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 of 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 the 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 and the Business Manager shall be exofficio 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 the 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 the 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.

ARTICLE VI. Dues

SECTION 1. Annual Dues. The annual dues for regular members and associate 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 or associate 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 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 determined 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.

SARA F. LESLIE

At the end of 1974 Sara F. Leslie, Publications Manager and Executive Editor of the American Physiological Society, will retire after 27 years of devoted service to the Society and its publications. The authors of articles in these publications as well as members, past and present, of the editorial boards are well aware of her outstanding editorial abilities, her unvarying attitude of helpfulness and her insistence on quality in publications.

In addition to her work with the Society publications, Sara during the same period, contributed to the development of Federation Proceedings and the formative stages of the Council of Biology Editors in which she has continued to play an active role.

On April 10, 1974 at the Editorial Boards Dinner, Sara was presented with a beautifully bound book containing letters of appreciation by many of her friends in the Society and the Federation. It is characteristic of Sara that she answered personally all one hundred and fifty some letters.

Sara Leslie leaves a high standard of accomplishment for her successors.

We wish her every success in her future activities.

PROPOSAL FOR CORRESPONDING MEMBERSHIP

One of the greatest strengths of physiology as a science is its role of integrator of other fields - e.g., physics, chemistry, mathematics, and engineering - into biology. Paradoxically, this has produced one of the Society's perennial problems. Physiologists are continuously forming new bonds of communication with scientists in other fields.

Thus a perennial problem of the American Physiological Society arises from one of the greatest virtues of the science of physiology. When a group of this type (the major fraction being physiologists) reaches the size of a few hundred or more, they usually want to formalize their communication system - at scientific meetings in the form of symposia, conferences, sessions of contributed papers, and social gatherings, and through the publication of special journals or sections of journals. The APS has given birth to many such groups, a sizable number of which have eventually budded off as new societies. The American Society of Biological Chemists and the Society for Neuroscience represent early and recent examples of this process.

A review of the history of the Society reveals a common pattern. In most, if not all, cases the members of APS who were a major fraction of the new group made an effort to achieve their aspirations within the structure and activities of APS. The result has invariably been the same. APS has been unwilling to make the concessions necessary to keep the new group in the fold.

Certainly the formation of a new society is not inherently bad, but one effect of it is antithetical to the APS aspiration of maintaining broad representation in functional biology. As the new society gains strength the APS tends to lose representation from the younger, active contributors in the field comprising the new society.

One of the principal factors militating against the incorporation of emerging new cross-disciplines has been the reluctance of APS to admit scientists of other disciplines to membership and therefore to participation in the governance of the Society.

A suggestion has been advanced that would allow scientists of other disciplines who are contributing to the advance of physiology to be admitted to APS communications without diluting the governance. This is the establishment of a category of Corresponding Members.

This category would include the large number of scientists who are contributors in scientific and technical areas the physiologists wish to be in communication with but who are not "North American professional physiologists engaged in research." Among the candidates for such membership would be: biomedical engineers, clinicians, physicists, chemists, mathematicians, physiology teachers not active in research, and foreign physiologists and scientists in ancillary fields.

In addition to the problems discussed above, the creation of this new category of membership would resolve some other difficulties encountered

by the Membership Committee and Council in reviewing nominations for membership. The present "Associate Member" category is so mixed in character as to cause some anomalous decisions in nomination of candidates.

Dues for Corresponding Members like those for regular members would include the Federation assessment in order that membership would provide the privilege of submitting papers for the Spring meeting, subscription to Federation Proceedings, the Federation Directory listing, etc.

Sources of Corresponding Members

APS Associate Members. This list should be examined to find those who qualify as Corresponding Members. Those that do should be individually invited; the others should be informed of the opportunity to apply for membership.

Societies with Close Ties to APS. The Biomedical Engineering Society, Biophysical Society, Microcirculatory Society, International Society on Oxygen Transport to Tissue, Cell Biology, and others we know to have suitable standards of membership could be invited to offer their non-APS members the opportunity to apply for Corresponding Membership. Our review of such applications would be brief based on the applicant's credentials of membership in the sister society.

Individuals Proposed by Two APS Regular Members. Review of these applications could be expedited requiring only election by Council on recommendation of the Membership Committee.

Restrictions on Activities of Corresponding Members

It is proposed that Corresponding Members not have a franchise for society elections or actions taken at the business meetings. Thus APS would retain the governance of the Society in the hands of the professional physiologists.

Amendment of Bylaws (See Constitution and Bylaws, p. 409, for present language.)

Establishment of the "Corresponding Member" category would require amendments to the Bylaws as shown below.

Members are requested to express their approval or disapproval of the proposal for this change on the card enclosed. If the response is largely favorable, the proposed amendment will be offered to the membership at the business meeting of the Society in Atlantic City in April 1975.

ARTICLE III. Membership

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

SECTION 2. Regular Members. (As presently stated)

SECTION 3. Honorary Members. (As presently stated)

SECTION 4. Corresponding Members. Individuals of any country having credentials in science or engineering who are presently engaged in work contributing to the advance of physiology.

SECTION 5. Associate Members. Advanced graduate students in physiology at a predoctoral level, and investigators who have not yet had the opportunity or time to satisfy the requirements for regular or corresponding membership 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 or corresponding membership.

SECTION 6. Retired Members. (Previously Section 5 - no change).

SECTION 7. Sustaining Associates. (Previously Section 6 - no change).

SECTION 8. Nominations for Membership. Two regular members of the Society must join in proposing a person for regular membership, honorary membership, corresponding membership, or associate membership, in writing and on forms provided by the Executive Secretary-Treasurer. The Membership Committee shall investigate their qualifications and recommend nominations to Council. Council shall nominate regular and honorary members for election at the Spring and Fall meetings of the Society. A list of nominees for regular and honorary members shall be sent to each regular member at least one month before the Spring and Fall meetings.

SECTION 9. Election of Members. Election of regular and honorary 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. Council shall elect corresponding members and associate members.

SECTION 10. Voting. Only regular members shall be voting members. Honorary, retired, corresponding, and associate members shall have the privilege of attending business meetings of the Society but shall have no vote.

1975 FALL MEETING - SAN FRANCISCO

The 1975 Fall Meeting, in response to the results of a survey of members' preferences, will be held in a city hotel in October rather than in the traditional University campus setting.

Since this is the first meeting the Society has held in this way, many facets of the meeting will be experimental. It is hoped we will have a sizable attendance and good communications within and between specialties. Also it will be the first time in several years that the Society will meet on the West Coast.

Plans will be developed for group travel arrangements from several Eastern cities to make the trip less costly for attendees from the Eastern states. These plans will be announced in detail later. However it is probable that savings near \$100 in round-trip fares can be realized.

The program is being developed by the APS Program Committee and will appear with the August issue of The Physiologist, the regular abstracts issue.

The success of this meeting may well determine the pattern for future Fall Meetings, so hold the dates October 5-10 and plan to meet by the Golden Gate.

FUTURE MEETINGS

- 1975 Spring* - Atlantic City, N.J. - April 13-18
- 1975 Fall - Sheraton-Palace Hotel, San Francisco - October 5-10
- 1976 Spring - Anaheim, California - April 11-16
- 1976 Fall - University of Pennsylvania, Philadelphia - August 16-19
- 1977 Spring - Atlantic City, N.J. - April 3-8
- 1977 Fall - Diplomat Hotel, Hollywood Beach, Florida - October 9-14
- 1978 Spring - Atlantic City, N.J. - April 9-14

* The date for submission of abstracts for the 1975 Spring Meeting in Atlantic City is December 5, 1974.

NOMINATIONS FOR MEMBERSHIP

Expedite Election Procedures

The election procedure for APS membership as required by the Bylaws of the Society, Article III, Section 7 (See Constitution and Bylaws, p.404) involves mailing a list of nominees to each regular member at least one month prior to the Spring and Fall Business meetings where the election takes place.

In practice this has meant including the list of nominees in mailings of The Physiologist preceding the meeting. This results in a delay of several months between nomination by Council at one Spring or Fall meeting and election at the next Spring or Fall meeting.

There have been a number of complaints by members concerning the long delay in processing applications, and also some confusion since two groups of applicants are in process at the same time (the nominees and the applicants awaiting nomination).

The requirement for mailing the list of nominees to the membership has never resulted in failure of the election of a nominee to membership. There have been a small number of challenges but all of these, upon review by Council, have resulted in election of the nominee at the Business Meeting following the one at which election would have occurred if there had been no challenge.

The proposal has been made that the list of nominees for membership be posted for consideration by the members attending the meeting two days before election. In practice this would involve the following procedure:

At the Spring Meeting - Following Council meeting a list of approved nominees would be posted in the APS Headquarters Office, with election of members at the second Business Meeting (normally Thursday P. M.).

At the Fall Meeting - Following Council meeting a list of approved nominees would be posted in the Registration Area with election at the Business Meeting (normally Wednesday P. M.).

The amendment to Bylaws required would be as follows:

ARTICLE III. Membership

SECTION 7. Nominations for Membership. Two regular members of the Society must join in proposing a person for regular membership, honorary membership or associate membership, in writing and on forms provided by the Executive Secretary-Treasurer. 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 ~~sent to each regular member at least one month before the Spring and Fall meetings~~ posted for consideration by the members attending the meeting two days prior to the Business Meeting at which the election occurs.

Please indicate your approval or disapproval of this proposal on the enclosed form to be returned to APS Headquarters. If there is a predominantly favorable response, the amendment will be offered for action to the Business Meeting of the Society in Atlantic City in April 1975.

CURRENT TOPICS IN PHYSIOLOGY

Physiological Reviews has instituted a new series of short reviews to be published under the title "Current Topics in Physiology." These articles are to be an analytical and critical appraisal of a limited field of physiology. They are subjected to the same review procedure as other articles published in the Journal.

These articles will be based on the introductory remarks to scientific sessions at the annual meeting of the Federation of American Societies for Experimental Biology and on the Bowditch Lecture, which is presented at the Fall Meeting of the American Physiological Society by a member of the Society who has done outstanding work. In the past, these papers have appeared in The Physiologist in essentially the style and length of the oral presentation. It was the opinion of the Publications Committee that these articles would reach a far larger audience and would represent a more critical appraisal of contributions of several laboratories if published in a critically reviewed journal. It is our hope that these papers will expand the contribution of Physiological Reviews to research and teaching in this and related disciplines.

Howard E. Morgan
Editor, Physiological Reviews

CRITERIA FOR MEMBERSHIP IN THE AMERICAN PHYSIOLOGICAL SOCIETY

The Bylaws state that a regular member of the Society can be "any person who has conducted and published meritorious and original research in physiology, who is presently engaged in physiological work, and who is a resident of North America. . . ." This statement is relatively specific but leaves a great deal to subjective judgement on the part of the Membership Committee as to who has conducted and published meritorious research. In an effort to clarify the criteria for membership, the Membership Committee of the Society has been working on a scoring system for the past year and a half which is used in evaluating candidates for full membership. The scoring system evaluates six different aspects of the candidate's training and performance as a physiologist. Each of these aspects is assigned a numerical grade and the scores for each category are summed to give an overall score for the applicant.

The categories currently in use and a brief description of the factors involved in assessing these categories are outlined below.

1. Professional training. Academic degree and postdoctoral training are evaluated and assessed with regard to how closely the applicant's training has been tied to physiology.
2. Major professional function. Particular emphasis is given to those applicants who have a full time position in a department of physiology. Relatively high ratings are given to people with research positions in clinical departments and to people functioning as independent investigators in commercial or government laboratories. In the past, the operating procedure for the Membership Committee has been to require a full time permanent position. However, this has been modified and exceptional postdoctoral fellows after two years or more of work subsequent to the doctorate are considered.
3. Level of interest in APS. Evaluation of this category is based on the journals in which the individual publishes, presentation of papers at meetings of the Physiological Society, and his attendance at the meetings of the Society.
4. Interest and Commitment to teaching. This evaluation is based on the fraction of the applicant's time devoted to teaching, any special awards or publications related to his activities as a teacher, and on the basis of information transmitted to us by letters from the sponsors.
5. Contributions to physiological literature. This category is obviously one of major importance and is one which is relatively difficult to analyze objectively. The applicant's bibliography is evaluated on the basis of the number of publications in major, refereed journals which are concerned with problems judged to be primarily

physiological in nature. Emphasis is given to publications on which the applicant is first author, since these would indicate that he has had a major impact on the design of the work, and emphasis is also given to papers originating after the applicant has established himself independently from his graduate and postdoctoral advisor.

6. Special considerations. A final additional category has been added to permit the Membership Committee to acknowledge special factors in an application, either from the standpoint of peculiar excellence in a specific area, or to highlight activities of an individual who applies from a background substantially different from the average.

These criteria have functioned reasonably well in two rotations of the Membership Committee selection procedure and we are at the moment finalizing the weighting factors to be applied to the various criteria. The Membership Committee solicits your comments, either with regard to adding or deleting criteria, or with regard to the relative importance which should be placed on these various categories. Any other comments you may have with regard to selection of members would be appreciated.

Brian R. Duling
Chairman, Membership Committee

ATTENTION: RETIRED MEMBERS

The FASEB Directory of Members is published annually, usually around the first of October. Copies are sent automatically to all active members, but copies are sent to retired members only in answer to a specific request in writing each year. Retired members who are interested in receiving the current Membership Directory should so inform the:

FASEB Business Office
9650 Rockville Pike
Bethesda, Maryland 20014

SPECIALTY GROUPS IN APS

A number of specialty groups have formed within the APS membership, with varying degrees of formal organization. Some utilize the occasion of the Spring meeting to schedule luncheons, dinners or other social functions, with or without an intrinsic scientific program. Others have a more concrete relationship with the Society, such as organizing a symposium for the meeting program or utilizing APS business services. With an interest in being of assistance to such groups Council recommended that a list of services which can be supplied by the Society Headquarters to an organized group be published in The Physiologist. The list which follows, largely consists of services which are being used by one or more such specialty groups.

1. Provide a channel through which a specialty group can determine, organize and format program material of its own choice for the annual meetings of the Society, within the constraints of available space and guidelines mutually agreed upon with the APS Program Committee to avoid undesirable conflict.
2. Arrange for ancillary meetings as the group chooses.
3. Maintain membership lists according to rules for admission to its membership established by the group.
4. Provide administrative services by contract that APS can reasonably provide (such as mailings to its members, printing, business services, dues collection, etc.)
5. Receive and transmit recommendations to the Publications Committee of persons to serve as editors, and members of editorial boards.
6. Receive and transmit recommendation of members for the standing committees of APS.
7. Perform any other services desired by the specialty group so long as its activities do not conflict with the interests of APS as monitored on a continual basis by Council.

THIRD INTERNATIONAL SYMPOSIUM ON
DETECTION AND PREVENTION OF CANCER

NEW YORK CITY, APRIL 26 to MAY 1, 1976

The aim of the Symposium is to promote an international exchange of information on cancer control through basic research, prevention and detection. The Scientific Program of the Symposium will include recent experimental findings and clinical studies. Their role in detection and prevention of cancer will be discussed and evaluated in different session formats, such as:

Lectures by leading authorities on progress in various disciplines; Panels of invited guest speakers for discussion of multidisciplinary topics on the role of basic cancer research in the prevention of malignant tumors and their detection during asymptomatic stages, epidemiology, environmental and occupational carcinogens, interaction between etiologic factors, early biologic manifestations of tumors, potentially malignant alterations, molecular oncology, cell kinetics, cytogenetics and radiation; Symposia include selected proffered papers on recent advances in detection and diagnosis of subclinical and early clinical stages of tumors in specific sites (breast, lung, gastrointestinal tract, bladder, female genital system), and various aspects of general population screening.

Adequate opportunities for discussion are planned and a closing panel will be devoted to summation of preceding sessions. Advanced workshops on various phases of cancer prevention, detection and diagnosis are scheduled immediately following the Symposium. Scientific and commercial exhibits are planned. The official language of the Symposium will be English with simultaneous translation into French and Spanish. Please address inquiries to:

Dr. H. E. Nieburgs
Secretary General
Third International Symposium on
Detection and Prevention of Cancer
Mount Sinai School of Medicine
of the City University of New York
Fifth Avenue and 100th Street
New York, NY, 10029

THE NATIONAL CORRESPONDENTS NETWORK

The exploits of the "Unsung Heroes" of the FASEB National Correspondents Network were given recognition in the Public Affairs section of the August 1974 issue of Federation Proceedings. Therein it was told how the network has been active and how the correspondents have had a major impact on current legislation. It was told how there is among scientists a keen interest in legislative matters and an eagerness to respond to calls for witnesses and advisers. It was also told how an updating of the list of correspondents has left a large number of vacancies to be filled. On this account, interest in becoming a correspondent was solicited from the membership of the federated societies at large. However, it is clear that most of the vacancies should be filled by members of the APS.

The real work of the National Correspondents is done by writing letters, making telephone calls or arranging in-person visits to members of Congress and various federal officials wherein factually-based positions are taken on impending legislation. The facts are routinely provided to the National Correspondents along with extensive background information and analysis by the FASEB Office of Public Affairs and its Director, Robert H. Grant. The correspondents also usefully serve their immediately surrounding colleagues as a source of information and as a leader for combined special efforts on behalf of specific items of particular local impact. Occasionally, the correspondents are asked by the FASEB Office of Public Affairs to respond to current issues in specific ways through the mediation of a Regional Coordinator. There are ten Regional Coordinators, each of whom will undertake to alert, usually by telephone, the correspondents in his region as to a need for an immediate response to legislative action scheduled some times for only a day or two away. The coordinator may ask that letters be written or telegrams be sent within hours. On such occasions, there is invariably too little time for anything approaching a complete discussion or resolution of the issues involved. The homework that has already been done has then to serve. What is important is action.

The National Correspondents Network now needs upwards of 100 volunteers to fill its depleted ranks. Of these, 75-80 should be physiologists. By inadvertence, it is specifically physiology, among the biomedical sciences represented in the federated societies, which has become underrepresented in the network. The APS has a membership of almost 4000 or close to 28% of the total in the federated societies. The APS currently contributes less than 8% of the correspondents. Sorely needed are 75-80 members of APS who will actively help to make the Network an effective contribution to the collective effort on behalf of biomedical research and education.

Perhaps the best way of getting the needed representation would be for the members of each department of physiology in the United States to select the one among themselves considered to be most effective for this kind of work and to submit this one name. The needs by regions would be thus best served. However, anyone who can shift current responsibilities so as to make adequate room for this one more

responsibility is urged to make the offer to sign up.

A post-card is enclosed in this issue for your use.

Robert K. Crane, Ph.D.
Chairman, APS Public Affairs and
Public Information Committee
Chairman, FASEB Public
Information Committee

NAS INSTITUTE OF MEDICINE

Membership in the Institute of Medicine of the National Academy of Sciences has grown to 269, with the election and acceptance of 63 new members. The IOM, established in 1970 to "be concerned with the protection and advancement of the health of the public," draws its membership from the health professions, the sciences, and such related fields as law, public administration, and engineering. The following APS members were named this year to IOM membership:

A. Clifford Barger, professor of physiology, Harvard Medical School.
Eugene Braunwald, Hersey professor of medicine, Harvard Medical School.

Theodore Cooper, Director, National Heart and Lung Institute, NIH.

David K. Detweiler, Director, Comparative Cardiovascular Studies Unit, University of Pennsylvania School of Veterinary Medicine.

Donald W. Seldin, professor and chairman, Department of Internal Medicine, University of Texas Southwestern Medical School.

Stephen M. Tenney, professor and chairman, Department of Physiology, Dartmouth Medical School.

Carroll M. Williams, Benjamin Bussey professor of biology, Harvard University.

PAST-PRESIDENT'S ADDRESS

Physiology and the Future

DANIEL C. TOSTESON

Members of the Society, families and guests. It is an honor for me to present the Past-President's Address at this 25th Annual Fall Meeting of the American Physiological Society. This year, as has been the case in several of the past few years, we are happy to be meeting with the Division of Comparative Physiology and Biochemistry of the American Society of Zoologists.

On behalf of all of the participants, permit me to begin by expressing our thanks to the local committee, representing the State University of New York at Albany and the Albany Medical College of Union University, which has arranged so superbly for this meeting. The scientific sessions are beautifully, even elegantly housed and well organized. The social occasions and particularly this banquet have been delightful. We owe special thanks to Charles Edwards and Tom Saba, the co-chair persons of the local committee. It is a pleasure for me personally to welcome to our midst the honorary chairperson of the local committee, a distinguished physiologist and medical administrator, Dean Harold Wiggers.

My service as President of the American Physiological Society during the past year would have been much more arduous without the competent and dedicated help provided by Orr Reynolds, Executive Secretary of the Society. In a sense, Orr and I have learned our jobs together. It was just over a year ago when he inherited the duties of Executive Secretary from Ray Daggs. Throughout the past year, Orr has worked for the Society with great diligence, intelligence, tolerance of a sometimes slovenly and always opinionated President, and fine sense of humor. For this, on behalf of all of us, thank you Orr.

In the context of American scientific societies, the American Physiological Society is venerable. One of the more satisfying aspects of membership is the sense of participation in a continuing tradition of scholarship in science. Through membership, we are all encouraged to maintain and promote the high quality of this tradition. This feeling has come to me with special intensity when I consider the standard set by my predecessors in this office. I think particularly of those who served in the most recent past, Bob Berne and John Brobeck. I know that my successors, Arthur Guyton and Bodil Schmidt-Nielsen, are moved by a similar sense of responsibility for the continuing health and growth of physiology. It has been a source of great satisfaction for me to work with these persons and with the other members of Council.

Occasions like this elicit a high interest in a subject of time. I mean not only the question "How long is he going to talk?", but also in the relation between the eternal nows of our existence. It is especially appropriate for Past-Presidents to become experts in the past. However, I eschew considerations of the past and will speak tonight on physiology

and the future. I do so with some trepidation because I know too well the dangers of extrapolating non-linear curves. Furthermore, a planning expert recently told me that, looking into the future, five years is indistinguishable from forever. I am reassured however that there is high tolerance for error in predicting the future. Furthermore, memories are short. I will speak to you on three aspects of the physiology and the future. First, research, secondly, education and thirdly, other ways in which physiology can be of service to our fellow human beings.

A famous mathematician, David Hilbert, once said that the vigor of a science can be measured by the number and quality of the unsolved problems which it addresses. He believed that such problems could be and should be articulated in a way that makes them understandable to most educated persons and certainly to most scientists irrespective of discipline. In order to demonstrate the viability of mathematics around the turn of the century, Hilbert formulated more than a dozen unresolved issues which he felt to be of fundamental importance. Many of his colleagues agreed with him and these problems received much attention during the succeeding years. Hilbert's criterion for the health of a science seems to me sensible. I propose to spend a few minutes assessing the vigor of physiological research by trying to articulate a few problems which seem to me to be of fundamental and general significance to science and also to fall within special concerns of physiologists.

I begin with what I call the problem of matching - the matching of a physiological problem with the appropriate class of concepts which will permit a new level of understanding. It is a general problem which pervades all of science and certainly all of biology. It is analogous to matching the impedance of a measuring device with the impedance of the circuit under study. Understanding in science requires that the concepts used to define or state a problem be coherent with the concepts used to solve it. In my judgement, failure to achieve adequate matching of this kind is one of the most common sources of confusion in physiological investigations.

To be more specific, we now know that it is possible to begin to describe physiological processes at virtually any of the levels of hierarchy of organization of matter which have been conceived by physicists and chemists. We know of particular examples involving photons, electrons, nucleons, atoms (charged and uncharged), molecules (small and large), aggregates of macro-molecules into membranes and rods, arrangements of such macromolecular aggregates into organelles and cells, the grouping of cells into tissues and organs, the integration of these structures into organisms and the social interactions between such reproducing individual entities. Different physiological processes are most appropriately and conveniently conceived in terms of different levels in this hierarchy of organization. But which level for which process, and how can the decision be made? Too often we assume that any information obtained about simpler levels of organization of physiological systems *pari parsu* contribute to their elucidation. But this strategy fails to acknowledge that the components of a living thing add, or perhaps better, integrate to perform functions of which no single component is capable. In such cases, functions depend not so much on the intrinsic properties

of components as on the relations between components. The strategy also ignores the fact that a complete description of a biological entity in terms of its simplest constituents may be at best ponderous and at worst useless because it fails to distinguish important from unimportant features of a vastly complicated system. A quantum mechanical description of a Ford is simply silly. In the past, the decision about the appropriate level of complexity at which to describe biological phenomena was often dictated by our inability to manipulate large numbers of parameters. Modern techniques of data acquisition and processing have reduced this barrier and frequently made it necessary to ask explicitly "Is this project of scientific value?".

One answer to this question might be called the Mallory response. It is of value "...because it is there." We scientists have an abiding respect for this approach. After all, this kind of play of the human mind has transformed the planet in the space of a few hundred years. In many cases, it is still the most appropriate response. However, in the years ahead, I think that physiologists must devote more attention to the explicit definition of goals, i.e. to the formulation of the problem to be solved, or, and the difference is significant, the issue to be resolved. If experimental science proceeds by the successive rejection of increasingly adequate hypotheses, then we must be sure that each hypothesis or model is cast in terms which are accessible to and coherent with the proposed observations. I believe that this general issue of the matching of model and method is of decisive importance in the future of physiology. Let me illustrate the point with two specific physiological problems.

Much of my own investigative work has been and is devoted to the attempt to describe the active transport of Na^+ and K^+ across plasma membranes in terms of the atoms and molecules with which these ions interact during transport. This process is an example of one of the several types of energy transformations which are the primary elements of all physiological functions. Most such functions depend on the coordination of more than one type of energy transformation. As a result of a long series of experiments in many laboratories, we now begin to have an idea of the membrane molecules which perform active transport of Na^+ and K^+ . Most of these experiments involve assays in which the active transport system was either fully active or fully inhibited. But the drama of life is played out in the range of $\pm 5\%$ of the steady state. Persistent operation of the active transport system outside of these limits leads inexorably toward death. Therefore, from the point of view of cellular function, the most important aspect of active transport is the molecular basis, not of the process itself, but of its regulation within narrow limits. The membrane molecular sites involved in this regulation may or may not be the sites involved in the transport itself. CO_2 and DPG alter the oxygen affinity of hemoglobin, not by reacting with the O_2 binding site but by reacting with different, relatively distant ligands. The reaction of these atoms with CO_2 changes the shape of the hemoglobin molecule and thus alters the topography and affinity of the sites which react with O_2 . This kind of allosteric regulation may occur, of course, not only within a single macromolecule but also between different macromolecules in closely packed arrays such as in membranes

of myofibrils. Investigations directed at elucidation of the primary process, may or may not provide insights into the mechanism of regulation, and vice versa.

A second frontier of physiology which illustrates the importance of matching is the relation between brain and behavior. We know that the brain is essential for thought. Thought expressed in the motor and sensory acts involved in communication has created civilization. Aside from the base sequences in DNA, it is the only way that information can be transferred from generation to generation. Nowhere is the closed character of the scientific adventure more evident than in the exploration of the ground of all science, the human mind. But what are the connections between our abstract physico-chemical picture of the world - electrons and ions, voltages and currents - and thought? One peptide, one idea? Or one pattern of active synapses for each image? Or perhaps a particular distribution in time and space of neuronal electrical activity for each dream? Specific regions of the brain for specific thoughts? The possibilities are legion. But how can we make a strategy to decide? It is feasible, if not easy, to formulate and test models of neuronal interaction. On the other hand, psychophysics is a relatively coherent discipline. But how to bridge the void? The effect of known molecules on brain and mind? Perhaps. But most molecules, and certainly psychoactive drugs produce small modifications everywhere in the nervous system making it hard both to formulate and to test brain models related to mental changes. Again, it seems to me that a crucial step is the matching of hypothesis and testing operation.

Recently a group of mathematicians met to try to repeat Hilbert's formulation of significant unsolved problems. They concluded that there are as many or more such problems as there were when Hilbert made his propositions more than 50 years ago. Indeed, many of the modern problems have arisen during the course of investigation of Hilbert's dilemmas. However, the new problems are said to differ from the old in one important respect, they cannot be understood by other scientists, even by other mathematicians, only by experts in that branch of mathematics. The emergence of specialization is an irreversible trend in science which will, in my opinion, increasingly affect the nature of physiological research in the years ahead.

Clearly, science is a cooperative process in which each individual scientist is utterly dependent on his or her colleagues, present and past. Special insight and competence in one avenue of investigation depend upon a restriction of attention. The exclusion principle in time demands that specialization occur at the expense of totipotentiality. The situation is analogous to the marvelous process of cellular differentiation. Although every cell of an adult human being contains the same genetic information, enough information to direct the synthesis of another human being, each differentiated cell contains expressions of only a small fraction of these genes. The repression of most of the genes permits a few to initiate the development of such specialized processes as hemoglobin synthesis or the formation of axons and synapses. But red cells and neurons cannot function alone; they must work in concert with each other and with

the other components which make up the organism. This orchestra can play music which no single cell can perform. So it is with science and scientists.

We physiologists, because of our legitimate concern with the inter-relatedness of all aspects of a living organism, have found the emergence of specialization particularly hard to tolerate much less embrace. We have tended to be the last generalists, jacks of all trades and masters of none. Both in the prosecution of our research and in the organization of our professional affairs, I think we could be more creative.

We can search for more useful and effective ways to bring the special knowledge of a wide range of experts to bear on significant physiological problems. This is often as much a psychological as a logistical problem. A sense of cooperation and trust are hard to build and easy to destroy, as illustrated by recent events in Washington. But how many of us really make use of the full panoply of research tools available at our institutions to solve our scientific problems? How often have we settled for an inadequate technical solution to an experimental problem because it was too difficult to establish liaison with the most competent colleagues in that field?

The American Physiological Society has grappled repeatedly with the organizational implications of specialization. We have watched anxiously as groups of our members became involved in the initiation of new societies, the American Society of Biological Chemists, the Biophysical Society and the Society for Neurosciences to name but a few. We have noted the appearance within the APS of an increasing number of specialty groups. We have considered divisionalization of our Society and sectionalization of our journals. I think that we must continually affirm the scientific vitality that leads to such differentiation. On the other hand, I believe that the basic integrity of the APS should not be splintered. It seems to me important that the Society continue to express in its structure the fundamental relatedness of all components of a living organism. One of the most effective ways to accomplish this goal is to include in APS meetings and publications reports of outstanding investigations which cover the entire range of functional biology, from endocrine to neuro physiology, from elegro to immuno physiology, from chemical to physical physiology irrespective of the discipline of origin of the investigator. Under the Chairmanship of Peter Curran and Frans Jöbsis, our Publication and Program Committees have made a start in this direction. The Lende Memorial Symposium organized at this meeting is an example. But we, irrespective of the discipline of origin of the investigator can do much more. These, then, are some of my reflections on physiological research and the future. Let us turn now to education.

I take the role of educator to be that of a catalyst for learning. One fact dominates the learning of any scientific discipline in 1974 and will become more dominant in the years ahead. We know more physiology than any of us can learn. The task of the educator then is to help the naive learner to identify and find the information which is relevant to his or her interests and to do the hard work of effective learning. In

my experience, the most serious and poorly understood step in the process is to promote the desire to learn. With it, everything is possible, without it, nothing. Within this context, I will comment on the educational process as it involves several kinds of persons, professional physiologists, physicians, and the general public, especially the general public, during childhood and adolescence.

Professional physiologists, ourselves, and those who aspire to that station, our graduate students, face the full blast of the information explosion. We have made a life-long commitment to learning physiology. Our investigative work requires access to the information generated by our colleagues. Much has been said and some has been done about applying modern computer techniques to the problem of the storage and convenient retrieval of this rapidly growing mass of information. But most of us still depend on the traditional mode of books and journals and the ancient custom of conversation with colleagues. It has the merit of being relatively sure but the liability of being slow. The data, once reached, are clearly set forth and, therefore, accessible to use and independent evaluation. The problem is to find them when you need them. In this respect, the format of recording data in the literature leaves much to be desired. We do much better recording and processing data in our experiments. I look forward to much needed effort and, hopefully, some progress in this matter of creating useful banks of data easily and rapidly accessible to all investigators during the years ahead. We already have adequate computer hardware with which to begin. The problem is us, our way of recording information.

Physiology is a science basic to medicine. Students of medicine, at all levels of sophistication, must also be students of the physiology of man. The educational project of bringing together the physician and the physiological information which he requires for competent practice is difficult and unending. We must continually refine our definition of the physiology which we expect all physicians to know and perfect our techniques for assessing progress in learning. It is possible that modern technology can also contribute to this problem. For example, I would like to see a faculty express the amount of information about physiology which all medical students must know in the form of a set of questions to be stored in a computer. Each student could call up the questions at will. The computer could record the responses, suggesting specific learning tasks to rectify errors. When the student could answer 0.90 or some other fraction (defined by the faculty) he could proceed to the next step in the curriculum. Such an experience would acknowledge that all learning is, in the last analysis, self-learning and that the learner bears the ultimate responsibility for the success or failure of the operation. It would place faculty in its proper role as experienced advanced learners rather than more or less technologically outmoded media for information transfer. We could be able to devote more time to thinking with students about the effective use of physiological insights in the understanding of function in the laboratory as well as at the bedside.

How many Americans know where their liver is located, not to mention some idea of its function? Indeed, how many college graduates know the answer to that question. The awareness of the average citizen about

even the most elementary aspects of the operations of their own bodies is often shockingly poor. As we move from the era when medicine, of necessity, concentrated its efforts on the cure or prevention of disease to an era of greater attention to health maintenance, this fact becomes an even more important determinant of the well-being of our citizens. The ramifications are many. For example, the adoption of sensible patterns of behavior in nutrition, or the use of all kinds of drugs, or family planning, or the use of the health care system all require some minimal knowledge of human physiology. Clearly, such knowledge is a necessary, but not a sufficient condition for practicing good habits of health maintenance. Witness the effectiveness of the anti-smoking campaign of the USPHS among health professionals. However, that is no excuse for perpetuating ignorance. It is with such considerations in mind that the Association of American Medical Colleges chose to devote the plenary sessions of its annual meeting this year to the issue of the responsibility of academic medicine for public education in health. Certainly, professional physiologists could do much to improve the quality of public education in health. Therefore, I am particularly pleased to note the activities of the APS Education Committee in this sphere. Under the able chairmanship of Jack Kostyo, this group has drafted, in collaboration with the Biological Sciences Curriculum Study, an excellent proposal to explore the development of a curriculum in human physiology for secondary school students. One consequence of this effort could be improved public understanding of the nature and need for basic physiological research.

Physiologists serve their fellow human beings largely through their programs of original investigation and education. Much of what we do in this regard is a direct component of medicine and the other health professions. I see nothing in the future that would tend to diminish this interdependence between physiology and medicine. The organizational arrangements will continuously change but the heart will continue to beat. There will be stabilization but not termination of the flow of Federal dollars directed toward categorical diseases into the support of basic physiology research. But permit me to comment on two other dimensions of public service which seem to offer opportunities for physiologists.

Traditionally, laboratory services in hospitals have been the domain of clinical pathologists and certain clinical specialties despite the increasing use of procedures which are essentially biochemical or physiological rather than strictly morphological in character. I think that this state of affairs has been unfortunate both for pathology and for the other basic sciences including physiology. It has tended to estrange pathologists from their basic science colleagues and physiologists from a legitimate concern with the physiological aspects of clinical medicine. Someday, I would like to see a medical school organized in such a way that the clinical faculty has responsibility and is reimbursed for the patient care which is an essential component of medical education while the basic science faculty as a whole is responsible and reimbursed for the performance of all laboratory procedures. Such an arrangement would, in my opinion, be a strong integrating force in medical faculties.

During the past year, I have spent a lot of time in Washington. I have had occasion to become acquainted with persons working in the executive and legislative branches of the Federal Government as well as in such organizations as the AAMC and the IOM. I am impressed that most of the persons working in these organizations are industrious, intelligent, and dedicated but relatively poorly informed about the nature of basic research, particularly its relation to the accomplishment of specific practical goals, and about graduate and health professional education. Often the background of these individuals is in the law or one of the social sciences such as economics or sociology. Physiologists could contribute much to the knowledge of these individuals about the health research and education programs which they seek to legislate and administer. The recently announced Robert Wood Johnson Health Policy Fellowships provide an opportunity for interested individuals to spend a year in Washington learning about these matters. I urge those of you who are so inclined to apply through your institution.

In summary, I think that the best time to be a physiologist is yet to come. The challenges of the future, in research, education and service, are greater, more difficult and complicated but so is our capability, both in quality and quantity, to meet them. Of one thing, I am sure. The future contains countless now unsuspected and fascinating adventures of the mind. I believe, with Père Teilhard that the day will come when everyone, in one way or another, will be involved in research. Our greatest asset is the large number of bright, hard-working young colleagues who join us in our explorations each year. I am grateful to have had the opportunity to serve this fellowship as President of the APS during the past year and look forward with enthusiasm to working with you during the years ahead under the leadership of Arthur, Bodil and their successors.

Thank you.

PRESIDENT'S REPORT

After becoming a member of the Council of the American Physiological Society, and now serving as President, I have learned how little I previously knew about the operations of the American Physiological Society. Therefore, I would like to take the next few paragraphs to explain some of the intricacies of this organization.

First, though the aggregate annual dues from all the Society members total only \$112,500 the overall annual budget is \$1,460,000. Therefore, for the \$35 that each member pays, he actually has an organization that operates at a per member budget level of \$348. Most of this excess budget represents income and expenses related to the publications of the American Physiological Society. However, the Society also receives several educational grants to fund special teaching projects such as the slide-tape teaching materials.

In this same vein, the central office staff at the headquarters of the American Physiological Society is composed of 33 persons, roughly divided into the following categories: 1) administrative, 2) business office, 3) publications office, and 4) education office.

As one can imagine, to maintain an operation of this magnitude, a very sound fiscal policy is required. Also, a surplus of funds is needed to tide the organization over lean periods, these to be replenished in the healthier periods. For this purpose, the American Physiological Society has a total equity of \$1,750,000, as of December 31, 1973, which in turn is composed of Handbook Inventory (including work-in-process) \$585,000; Accounts Receivable \$184,000; Securities \$975,000; and other miscellaneous items.

You will see from the above balances that the amount of liquid equity is approximately equal to the annual operating budget of the American Physiological Society. Most of this equity is in the Publications Reserve Fund, which is appropriate since it is also for the publications that we have our largest expenditure.

The Finance Committee of the American Physiological Society has determined that the dues structure of the American Physiological Society and the charges for journals shall be set periodically to maintain a liquid equity always above 1.0 times the annual operating costs of the Society. This has been a rather rigid operating principle for a long time, a principle that has made the American Physiological Society a very stable organization and also an organization that can provide maximum benefits for its members.

Most of the surplus funds of the American Physiological Society came originally from excess income from the Society journals a number of years ago. These funds fortunately were invested wisely, and the total value has multiplied approximately four fold over the years. The funds are still maintained in investments, either in Certificates of Deposit managed by the Business Manager of the American Physiological Society or in a Wall Street account managed by Wood, Struthers and Winthrop

with approximately 40 per cent of the funds of this account in bonds and the remainder in stocks. The management of these funds has been such that, despite the recent disastrous years of the stock market, the equity of our reserve funds has consistently done better than that of the stock market in general.

Now, to speak of some of the functions of the Society: All of the Society's operating programs are overseen and directed either by the Council or even more so by various committees composed of Society members. The four most important committees of the American Physiological Society are:

- 1) The Finance Committee which oversees the financial operations.
- 2) The Publications Committee which oversees the operations of the publications office.
- 3) The Program Committee that is responsible for the programs at the annual meetings and also responsible for new innovative programming ideas.
- 4) The Education Committee which has an abundance of ideas for service to the American Physiological Society members but, unfortunately, far too few funds to achieve most of these purposes.

Many of the activities of the Society are already well known, such as its publishing ventures, the arrangements for meetings, and some of the activities of the Education Committee. However, new directions are constantly being explored, with the hope that the Society can become of increasingly more benefit to its members. Some of the specific projects and programs now under discussion for future American Physiological Society activities are the following:

First, there is considerable discussion within the Publications Committee relating to two projects: a) Possible sectionalization of the American Journal of Physiology and of the Journal of Applied Physiology. One of the presently favored procedures, if this is done at all, is to publish both of these journals as they now stand, but also to make available collected articles from both of the journals in simultaneously sectionalized journals. b) Possible publication of an American Physiological Society monograph series.

Second, activities of the Program Committee involve two different types of new innovations: a) An Annual colloquium at the Spring meeting of the Society on some subject that is of wide interest to physiologists. b) Organization and planning of a new style of Fall meeting to be held every other year in some city of specific interest to Society members. The first of these will be held in San Francisco in the Fall of 1975, only one year hence. A special feature of the program will be a series of tutorial lectures.

Finally, we must speak of the perennial problem that faces our Society: progressive fractionation of our members into specialty areas many of which eventually split away from the Society. Most recently, we have lost much of the allegiance of the neurophysiologists to the Society for Neuroscience. However, this has been preceded in recent

years by the Biophysics Society, the Microcirculation Society, the Biomedical Engineering Society, and others. Perhaps this is inevitable, but the Council of the American Physiological Society has addressed much thought to possible solutions. At present, we have settled on only one definitive course of action. This is to help each splinter group to find a place within the Society rather than searching elsewhere. To do this we are instituting procedures that will allow more input into programming, society organization, and self activities for those groups that have already organized themselves as specialty groups. In addition, for special problem areas we are making an attempt to foster special programming and other inducements. The area of most concern at the present time relates to neurophysiology, because the decreased participation of neurophysiologists in the meetings of the American Physiological Society in the past few years has already been a serious loss.

However, the Council does not have an assured answer to the problem of splinter groups. Therefore, we would welcome any suggestions and any help. Also, we would welcome any other suggestions that members might have whereby the official organization of the American Physiological Society can be of special benefit to its members.

Arthur C. Guyton

INTERNATIONAL COMMITTEE ON LABORATORY ANIMALS

The International Committee on Laboratory Animals (ICLA) will hold its 6th Symposium in Thessaloniki, Greece, on July 8-12, 1975 on the themes:

1. Laboratory Animals in the Study of Reproduction
2. Training in Laboratory Animal Science

Interested scientists are invited to submit papers related to these main topics. Two hundred word abstracts should be mailed before February 1, 1975 to the Chairman of the Programme Committee:

Dr. Nicolae Simionescu
Yale University School of Medicine
Cell Biology Department
333 Cedar Street
New Haven, CT 06510

Proceedings of the Symposium will be published. Further details are available from the Chairman of the Programme Committee.

LALOR FOUNDATION RESEARCH FELLOWSHIP
PROGRAM FOR 1975

The Lalor Foundation has announced its program for 1975 of post-doctorate grants for research in its special areas of interest in mammalian reproductive physiology.

The Foundation will make grants up to \$13,000 each to qualified tax-exempt institutions for conduct of approved projects up to one year. Foreign institutions can in general achieve a similar eligibility.

The applicant institution has the obligation and freedom to make its own designation of a Lalor Fellow for conduct of the research from among its own personnel or elsewhere. The Fellow designated should have achievement at least equivalent to the Ph.D. or M.D. degree. Upper age limit is in no case over 35 years.

Applications are restricted to research projects bearing on -

- (a) early amniocentesis in fetal development, or other means for detection and evaluation of dysgenic factors or prospects of congenital disabilities, and means toward their disposition; or
- (b) uterine and cervical physiology and phenomena relevant to pregnancy interruption, particularly for second trimester terminations.

Forms and details for institution application are available from the Lalor Foundation, 4400 Lancaster Pike, Wilmington, Delaware, 19805. Deadline for filing is January 15, 1975. Appointments will be announced March 15, 1975.

C. Lalor Burdick
Director

A NEW HANDBOOK OF PHYSIOLOGY

The Pituitary Gland and Its Neuroendocrine Control

The following quotations are taken from the preface of the newest volume of the *Handbook of Physiology* section on endocrinology: The Pituitary Gland and Its Neuroendocrine Control. With this preface the volume editors, Ernst Knobil and Wilbur H. Sawyer, introduce a most important volume in the series.

"One of the most difficult challenges to an active investigator in a rapidly advancing field is to stand aside for a time and contemplate his subject from a distance with objectivity and equanimity. This is what we have asked the authors of the following chapters to do, and they have responded magnificently. The thoughtful scholarship which marks these pages belies the fact that nearly every aspect of the hypothalamo-hypophyseal system abuts on constantly shifting frontiers buffeted by lively discussion if not spirited controversy. It is a tribute to the authors that this work will undoubtedly exceed its projected decade of utility, for in the hands of lesser talents it would have been obsolete by the time of publication."

"The two parts of this volume consist of three major segments. The first segment deals with the morphology of the hypothalamo-hypophyseal apparatus. The second consists of extensive discussions of the synthesis, storage, release, metabolism, and actions of the neurohypophyseal hormones; the third concerns the hormones of the anterior lobe of the pituitary gland, their actions, and the control of their secretion by a variety of neuroendocrine systems, the details of which remain to be elucidated.

"The hypothalamo-hypophyseal system is central to much of endocrine physiology in that it encompasses the major control system for adrenocortical, thyroid, and gonadal function in addition to exerting direct effects in the control of growth, lactation, and many aspects of renal, cardiovascular and reproductive physiology. The contents of this volume therefore impinge, at least in part, on those of every other in the Section on Endocrinology."

This volume is to be published in October 1974. Members of the American Physiological Society may order copies directly from the Business Office, 9650 Rockville Pike, Bethesda, Maryland 20014.

Part 1, 584 pages, 293 figures (7 in color), member price \$40.00 (non-members \$49.50).

Part 2, 607 pages, 203 figures, member price \$40.00 (non-members \$49.50).

4th WORLD CONGRESS ON BALLISTOCARDIOGRAPHY AND OTHER NON-INVASIVE METHODS IN CARDIOVASCULAR DYNAMICS

The Congress will be held in Amsterdam, Holland on April 14-16, 1975. The Congress is organized by the Physiological Laboratory, Free University, Van der Boechorststraat 7, Amsterdam. The subjects to be discussed fall into the following headings: 1) The relation of invasive and non-invasive mechanical methods; 2) Evaluation of non-invasive methods, in particular their possible use for the early detection of ischaemic heart disease; 3) The influence of therapeutic measures on ischaemic heart disease evaluated with non-invasive methods; 4) Data-analysis of Bcg-recordings; 5) Improvement of non-invasive techniques, such as three-plane Bcg, carotid pulse, etc.; 6) Use of non-invasive methods in studying cardiovascular aging processes. It is intended to open every session with an invited lecture followed by free communications. The Congress is open to members of the European and the American Societies for Ballistocardiography and Cardiovascular Dynamics, as well as to all clinicians, physiologists and physicists working on or interested in cardiovascular dynamics. Delegates wishing to contribute a paper should send their abstracts to the scientific committee of the Congress at the above address before January 1, 1975. Accepted papers will be printed in the proceedings to be published after the Congress.

REFRESHER COURSE IN CARDIAC RADIOLOGY

A refresher course in cardiac radiology will be held by the North American Society for Cardiac Radiology from March 2 to 6, 1975 in Williamsburg, Virginia. A distinguished faculty will conduct seminars covering the radiology of acquired and congenital heart disease and its clinical implications.

For further information please write to:

Klaus Ranniger, M.D.
Medical College of Virginia
MCV Station, Box 2
Richmond, Virginia 23298

A SHORT ESSAY ON THE IMPORTANCE OF DOGS IN MEDICAL RESEARCH

CHARLES H. BEST

One could list hundreds or even thousands of researches in many countries of the world in which the advance of science and the art of the physician and surgeon have been founded in large part on the experimental use of dogs. There have been many good articles written in England and they usually start with the work of Harvey, the discoverer of the circulation of the blood. He used dogs as his experimental animals. The circulation of the lymph, the processes of digestion, the work of the neurophysiologists upon the brain and the spinal cord, methods of life-saving, work on the development of safe anesthetics and of thousands of drugs, have been gained by experiments using dogs.

I am familiar with many extensive descriptions (which have come from England and from the United States and, indeed, from many other countries) concerning the contributions of dogs, but in this short article I would like to concentrate on the discovery of insulin, and its application to the treatment of diabetics throughout the world. The earliest reference which I have easily available is the treatise on the experiments on the pancreas and on the flow of lymph by Johann Conrad von Brunner of Switzerland, who published his article in Amsterdam in the year 1683. This book was given to me by Frau Oskar Minkowski and had been in her husband's library in Germany. Brunner was not really interested in diabetes but he attempted to remove the pancreas in order to study the effect upon the digestive processes. He was successful in securing an almost complete removal in at least one case because his dog showed all the signs and symptoms of diabetes. But Brunner was more interested in the glands which now bear his name and the lymph patches in the intestine were named after his friend Payer.

The experiments of von Mering and Minkowski in 1889 which showed conclusively that complete removal of the pancreas always resulted in fatal diabetes, are milestones in the history of this disorder. Dogs were the experimental animals. The same can be said of the work of Starling, Paulesco, Kliner, Zuelzer, E.L. Scott, Prof. J.J.R. Macleod, Prof. Murlin of Rochester, New York, and hundreds of others. It was therefore inevitable that Fred Banting and I would choose the dog as our experimental animal. Banting was an expert surgeon and I was familiar with the then modern methods of estimating blood and urinary sugar, ketone bodies, nitrogen, and other constituents of tissue fluids. I had spent part of my final year in the physiology and biochemistry course studying the respiratory quotients.

Both Fred Banting and I had personal interest in diabetes. He had watched a child in Alliston, Ontario, lose weight and eventually develop diabetic coma and die. My aunt, a trained nurse, developed diabetes in 1912. She was a patient of Dr. Elliott P. Joslin who placed her on the Allen under-nutrition regimen. She followed this diet faithfully but died in diabetic coma in 1918.

When Prof. Macleod gave us facilities in the Department of Physiology he stated that ten dogs would be available to us. The cost of these animals in those days (1921) was about one dollar each. I do not remember exactly how many animals we used before the discovery phase of insulin was complete - it may have been 20. Those not provided by the laboratory we purchased from our personal funds. We had no stipends and indeed no appointment in the laboratory.

This is not the place to describe the experiments in detail. We had our difficulties initially but in August and September we performed scores of experiments which were dramatically successful in providing convincing evidence of the presence of the internal secretion of the pancreas.

We looked after our dogs ourselves; fed them and cleaned the cages. We trained them to put out their paws for withdrawal of blood and we made them as comfortable as we could under the circumstances. I do not think that in these or subsequent experiments we ever inflicted pain and discomfort on dogs which we would not have been willing to accept ourselves. The animals which were depancreatized before insulin was available and which lived for ten days to two weeks, were necessary as controls for the animals which were to receive insulin.

When Prof. Macleod returned to Toronto in the middle of September (he had left early in June) he stated that he was perfectly convinced that we had obtained sufficient evidence to prove the presence of insulin. We had a list of a dozen other studies which we wished to make but he insisted that we obtain more and more evidence on the fundamental point, that is, that the potent anti-diabetic material could be consistently extracted from dog and beef pancreas and that this would eliminate the signs of diabetes and keep completely depancreatized dogs alive as long as they were given one injection a day.

We presented our results before the Physiological Society in Toronto in November 1921, and before the American Physiological Society in December 1921. In both cases the reception of our findings was enthusiastic and most encouraging.

In early January I made a special extract from beef pancreas, purified it with alcohol and fat solvents, sterilized it by passing through a Berkfeld filter and then tested the final product on diabetic dogs. It was very potent.

As I have stated elsewhere, I have always felt it regrettable that we did not use an extract of foetal calf pancreas because this was at least ten times as potent as that made from whole beef material.

On the 10th of January, 1922, Banting and I gave each other injections of our insulin. There were no untoward effects except a mild soreness of our arms. On the following day the material was taken to the Toronto General Hospital where a 14-year old boy, Leonard Thompson, became the first diabetic to receive insulin. The first patient in the United States was James Havens of Rochester, New York. He became a celebrated artist and lived to have a fine family.

Our travels in some 70 different countries have brought us into contact with many, many thousands of diabetics. The statisticians tell us that figures based on the world-wide consumption of insulin indicate that some 130,000,000 diabetics have had their lives prolonged by insulin. The number, of course, is steadily increasing.

All this work which I have described, up to the clinical application of insulin, was carried out on dogs and this is only one of the many, many thousand series of experiments which testify to the importance of dogs in medical research.

In other work which led to the discovery of the vitamin choline which prevents fatty changes and cirrhosis in the liver, dogs were used in our laboratory. In other experiments on the purification and the use of heparin in preventing thrombosis, this species was also utilized. The same is true of much of the work on histamine which led to the discovery of the enzyme histaminase.

Fred Banting and I had two great hopes in 1921 and 1922. One, that the dramatic recovery of diabetic animals could be consistently produced by insulin in human patients. This, of course, is in general true although one is acutely conscious of the problems in the treatment of the human cases which have not as yet been solved. But great progress is being made not only in learning more about the etiology of diabetes and the mechanism of production of the complications but in the development of new methods which may make possible the more physiological administration of the hormone.

We were also hopeful that insulin would be an important agent in metabolic research. Volumes could be written on this subject and indeed I think one could say that no other physiological agent has been instrumental in revealing as much about the intermediate metabolism of carbohydrates, proteins and fats, as this hormone has. It has been important in enzymology, in the study of cell permeability and many other fields which I must not attempt to list.

Fred Banting and I got a great thrill out of the recovery of all diabetics, many of whom we knew personally. Perhaps the most interesting was that of Dr. George R. Minot, of Boston, who was a sever diabetic. He responded well to insulin and then devoted his life to medical research. His discovery of the liver treatment of pernicious anemia (with Murphy and Whipple) is another of the great romances of medicine. Patients who have been successfully treated with vitamin B₁₂, have undoubtedly made great contributions to science and the arts. This is the beginning of one of the pyramids of scientific romance and certainly scores, perhaps hundreds of others, have been built during the last half century.

EDITOR'S NOTE: Dr. Charles H. Best, the co-discoverer of insulin, was asked to prepare this statement because of the recent great interest in the Congress of the United States in restricting or even prohibiting the use of dogs in biomedical research. More than fifteen separate bills with nearly one hundred sponsors have been introduced into the 1974 session of the Congress dealing in one way or another with this question.

The Physiologist, as the house organ of the American Physiological Society which numbers among its 4,500 members the majority of the scientists in the United States who are concerned with the use of animals in scientific research, seems to be the appropriate place to publish the dramatic story of the way in which the dog became man's best friend for the tens of millions of diabetics who would not otherwise have been alive today, and the hundreds of millions who would die in the future if the use of dogs in the discovery of insulin had not been permissible.

It is hoped that this essay or at least its essential story may reach hundreds of thousands of people. Too many people believe that the study of living animals in the search for knowledge about disease is inhumane or even unnecessary. It is fortunate that one of the two primary players in the drama of the development of insulin in 1921 has given us this account in his own words.

Dr. Best has not only had a brilliant career in physiological research with many useful applications to medicine in addition to the discovery of insulin, but he has played a major role in the development of science on an international scale. He was President of the International Union of Physiological Sciences. He is a member of numerous National Academies and a Fellow of the Royal Society of London, and has received almost innumerable medals and honorary degrees. He is also the co-author of two of the most valuable textbooks in the field of physiology; one for prospective physicians and another for non-specialists. His contributions to physiology have been exceeded only by his contributions to humanity.

AN EAGLE FEATHER: THE SHORT LIFE OF ALBERT MOSER, M. D. A FOOTNOTE TO THE LIFE OF WALTER B. CANNON

Those of us who are involved in the management of the Society's publications spend most of our time concerned with matters of scheduling and finances. Rarely do we have an opportunity to examine our present operations in light of what has happened before. However, this year has been an exception as Sara Leslie is spending much of her time organizing the Archives of the American Physiological Society publications. Her involvement in this mammoth task has made all of us at sometime during the year stop to consider the past history of the Society and how that past has influenced what we are doing today.

Therefore it was quite timely that a small volume written by Horace W. Davenport arrived in the office recently. "An Eagle Feather: The Short Life of Albert Moser, M.D. A Footnote to the Life of Walter B. Cannon"* is a carefully documented record of the life and works of someone who was closely associated with Dr. Cannon and his work on X-rays and swallowing. Much of what is included in the book involves the members, meetings, and publications of the American Physiological Society. Henry Pickering Bowditch (founder of the first physiological laboratory in the United States for the use of students), William Townsend Porter (founder, editor, and financier of the American Journal of Physiology) are among the giants involved in the life of Moser. The early meetings of the Society and even the wood from which the President's Gavel is made are part of this story.

Dr. Davenport's book and Miss Leslie's undertaking to document what has occurred are important as they provide guidance for those responsible for what will occur in the future.

Stephen R. Geiger
Acting Publications Manager

* Available at \$2.50 per copy from the Francis A. Countway Library of Medicine, 10 Shattuck Street, Boston, Mass. 02115.

1975 SAN DIEGO BIOMEDICAL SYMPOSIUM

The 1975 San Diego Biomedical Symposium will be held at the Hilton Inn, on Mission Bay, San Diego, California during the period February 5-7, 1975. The theme for the meeting is "Innovations in Biomedicine."

The Symposium has been held each year since it was organized in 1960 under the name San Diego Symposium for Biomedical Engineering. Traditionally, the Symposium has focused its attention on interdisciplinary topics in medical, biological, and engineering technologies. A high proportion of the past contributions have dealt with information science in medicine. The primary objective is to stimulate interaction among life and physical scientists and practicing physicians. For further information contact:

Dr. L. Rosen, Program Chairman
Department of Radiology
University of California
Box 109
La Jolla, California 92037

ASSOCIATION FOR THE ADVANCEMENT OF MEDICAL INSTRUMENTATION

The Tenth Annual Meeting and Exhibit Program of the Association for the Advancement of Medical Instrumentation will be held March 16-19, 1975 at the Statler-Hilton, Boston, Massachusetts. Authors need not be AAMI members to submit or present papers. The scientific program will include papers by distinguished engineers, physicians, other scientists, and administrators concerned with increasing the efficiency and effectiveness of medical care and research through development and utilization of medical instruments, systems, and devices.

For further information write to: Scientific Program Committee, AAMI, 1500 Wilson Blvd., Suite 417, Arlington, Virginia 22209.

SUPPLY AND DEMAND*

Doctoral Scientists and Engineers in the United States, 1973 Profile, a report prepared for the National Science Foundation by the Commission on Human Resources of the National Research Council, is the first major study of the working doctoral population in the sciences.

In 1973 there were 227,000 doctoral scientists and engineers employed in the United States. Educational institutions employed 58%; 23% were working in industry and 9% in the federal government. Chemists and engineers accounted for more than 60% of those employed by industry while physicists and earth scientists dominated the ranks of federal workers with doctoral degrees in science or engineering.

More than 41% of the scientists and engineers were engaged primarily in research and development or its administration with an additional 37% engaged primarily in teaching.

By field of employment, 6.7% were in mathematics, 7.5% in physics and astronomy, 12.3% in chemistry, 4.5% in earth sciences, 15.2% in engineering, 25% in biosciences, 10.8% in psychology, 11.5% in the social sciences, 4.8% working in non-sciences and 1.5% with a field unknown. Among these scientists, women make up 5.7% of the mathematicians, 2.4% of the physicists, 4.7% of the chemists, 2.6% of the earth scientists, 4% of the engineers, 10.4% of the bioscientists, and 19.5% of the psychologists.

Among the 244,900 doctoral scientists and engineers who received their doctorate between 1930 and July 1, 1972, nearly 220,800 were employed - 213,600 full time and 7,200 part time. Temporary postdoctoral appointments were held by 6,000 doctoral scientists or engineers, most of them graduates of recent years.

This report is based on a survey of the Roster of Doctoral Scientists and Engineers compiled on a continuing basis by the National Research Council. Single copies are available free from the Commission on Human Resources, National Research Council, 2101 Constitution Avenue, N.W., Washington, D. C. 20418.

* Extracted from Scientific Engineering Technical, Vol. 11, No. 5, May, 1974.

INTERNATIONAL CONGRESS OF PSYCHONEUROENDOCRINOLOGY

The 6th International Congress of the International Society of Psychoneuroendocrinology will be hosted by the University of Colorado School of Medicine and will be held at the Given Institute, Aspen, Colorado, August 22-26, 1975.

The general theme of the Congress is "Neuroendocrine Mediation Between Environment and Behavior" and will focus on topics: a) Cyclic Rhythms; b) Modulation of Behavior by Administration of Hormones; c) Alcoholism as a Drug Abuse.

The Congress will comprise formal symposia on these topics dealing with observations in animal and man. In addition, short communications on related subjects are invited.

Further information may be obtained from Dr. Antonia Vernadakis, Organizing Committee Secretary, International Society of Psychoneuroendocrinology, Departments of Psychiatry and Pharmacology, University of Colorado School of Medicine, Denver, Colorado 80220.

INTERNATIONAL CONFERENCE ON CARRIERS AND CHANNELS IN BIOLOGICAL SYSTEMS

The International Conference on Carriers and Channels in Biological Systems sponsored by the New York Academy of Sciences will be held February 24-27, 1975 at the Delmonico Hotel, New York City. The theme of the Conference will be: The mechanism of permeation across artificial and natural membranes and whether a particular transport system exhibits "carrier" or "channel" characteristics. Dr. Adil E. Shamoo, Dept. of Radiation Biology and Biophysics, University of Rochester School of Medicine and Dentistry, Rochester, New York will be Chairman of the Conference. For further information, contact Conference Department, The New York Academy of Sciences, 2 East 63rd St., New York, N. Y. 10021.

INTERNATIONAL PHYSIOLOGICAL CONGRESS MEDAL COLLECTION

Dr. Ralph R. Sonnenschein, Department of Physiology, UCLA School of Medicine, Los Angeles, California 90024 would be very grateful for information for his collection of medals pertaining to physiology and the related sciences, as well as offers of medals by gift, exchange or sale. To complete his series of medals issued at the International Physiological Congresses, he would especially like to get those of the 1907, 1920, 1923 and 1935 Congresses. Any other medals of physiological interest would be welcome.

Following is a list of medals portraying individuals in physiology and related sciences and medals issued at International Physiological Congresses which Dr. Sonnenschein has collected so far:

- Vesalius, Andreas (1514-1564); 20th International Physiological Congress, Brussels, 1956. Bronze, 50 mm. Artist: A. Ch. Jouvenel.
- Harvey, William (1578-1657); Bronze, 42 mm. Artist: Binfield, 1823, Munich. (Series Numismatica Universalis Virozum Illustratum).
- Boerhaave, Hermann (1668-1738); Silver, 45 mm. Artist: Abram Belskie, 1970.
- Priestley, Joseph (1733-1804); White metal, 51 mm. Artist: Thomas Halliday, ca. 1810 (?).
- Scheele, Karl Wilhelm (1742-1786); 12th International Physiological Congress, Stockholm, 1926. Bronze, 37 mm. Artist: J. G. Wikman.
- Prochaska, George (1749-1820); Bronze, 70 mm. Artist: J. T. Fischer, 1949.
- Purkyně, Jan Evangelista (1787-1869); Centenary of Czech Medical Society, 1962. Bronze, 66 mm. Artist: V. A. Kovanič.
- Purkyně, Jan Evangelista (1787-1869); 8th International Gastroenterological Congress, Prague, 1968. Bronze (?) gilt, 60 mm. Artist: Milan Knobloch.
- Bernard, Claude (1813-1878); Bronze, 68 mm. Artist: Alfred Borrel, 1879.
- Mendel, Gregor (1822-1884); Bronze, 60 mm. Artist: V. A. Kovanič, 1965.
- Bert, Paul (1833-1886); 10th International Congress of Aerospace Medicine, Paris, 1961. Bronze, 68 mm. Artist: Alfred Borrel.
- Farkas, Géza (1872-1934); Professor of Physiology, Budapest, 1904-1934. Hungarian Physiological Society, 1972. Bronze, 81 mm. Artist: Walter Madarassy. (Also a terra cotta cast of same).
- Cushing, Harvey (1869-1939); 2nd International Congress of Neurological Surgery, 1961. Bronze, 51 mm. Artist: Louis Iselin.
- Association des Physiologistes de Langue Française, 30th Meeting, Nancy, 1962. Bronze, 68 mm.
- 23rd International Congress of Physiological Sciences, Tokyo, 1965. Bronze, 60 mm. Artists: K. Uchiyama and S. Hirose.
- Beaumont, William (1785-1853); 13th International Physiological Congress, Boston, 1929. Bronze, 51 mm. Artist: J. M. Miller.
- Szent-Györgyi, Albert (1893 -); Bronze, 87 mm. Artist: G. Sós, 1970.
- Linnaeus, Carolus (1707-1778); 1st International Pharmacological Meeting, Stockholm, 1961; Silver, 40 mm.

- Galen, (131-201); Pharmaceutical Society, London. Bronze, 45 mm.
Artist: W. Wyon, 1841.
- J. E. Purkyně University (Brno, Czechoslovakia). Bronze, 40 mm.
Artist: Andrej Peter.
- Galen (130-200). Bronze, 45 mm. Artist: Abram Belskie, 1969.
- Paracelsus, (1493-1541); Bronze, 45 mm. Artist: Abram Belskie, 1970.
- Vesalius, Andreas (1514-1564); Bronze, 45 mm. Artist: Abram Belskie, 1970.
- Harvey, William (1578-1657); Bronze, 45 mm. Artist: Abram Belskie, 1970.
- Scheele, Carl Wilhelm (1742-1786); Bronze, 45 mm. Artist: Abram Belskie, 1970.
- Lavoisier, Antoine Laurent (1743-1794); Bronze, 45 mm. Artist: Abram Belskie, 1970.
- Bernard, Claude (1813-1878); Bronze, 45 mm. Artist: Abram Belskie, 1971.
- Virchow, Rudolph (1821-1902); Bronze, 45 mm. Artist: Abram Belskie, 1972.
- Pasteur, Louis (1822-1895); Bronze, 45 mm. Artist: Abram Belskie, 1972.
- von Roentgen, Wilhelm Conrad (1845-1923); Bronze, 45 mm. Artist: Abram Belskie, 1972.
- Pavlov, Ivan (1849-1936); Bronze 45 mm. Artist: Abram Belskie, 1972.
- Nobel, Alfred (1833-1896); Silver, 27 mm. Artist: MJV, 1960.
- Von Brücke, Ernst Wilhelm (1819-1892); 8th International Physiological Congress, Vienna, 1910. Bronze, 66 x 66 mm. Artist: P. Breithut.
- Ehrlich, Paul (1854-1915) and Hata, Sahachiro (1872-1938). Bronze, 67 mm. Artist: Franz Kounitsky, 1912.
- Freud, Siegmund (1856-1939); Bronze, 60 mm. Artist: Carl Maria Schwerdtner, Jr., 1906.
- Spallanzani, Lazzaro (1729-1799); 14th International Physiological Congress, Rome, 1932. Bronze, 50 mm. Artist: R. Brozzi.
- Pasteur, Louis (1822-1895); The College of Physicians of Philadelphia. Bronze, 40 mm. Artist: Clifford Schule, 1972.
- Fernel, Jean (1497-1558); Bronze, 41 mm. Artist: A. J. Depaulis, 1822, (restruck) (Galerie Metallique des Grands Hommes Français).
- Descartes, René (1596-1650); Bronze, 68 mm. Artist: Pierre Turin, 1937 (restruck in 1972)
- Lavoisier, Antoine Laurent (1743-1794); Bronze, 41 mm. Artist: A. Dupré, (restruck in 1970).
- Laënnex, René Theophile Hyacinthe (1781-1826). Bronze, 68 mm. Artist: Albert Herbemont, 1949 (restruck in 1972).
- Brown-Séquard, Charles Edouard (1817-1894); Bronze, 68 mm. Artist: Albert de Jaeger, 1972.
- Pasteur, Louis (1822-1895); Bronze, 52 x 73 mm. Artist: G. Proud'-homme, 1910 (restruck in 1972).
- Carrel, Alexis (1873-1944); Bronze, 72 mm. Artist: Lucien Lafaye, 1971.
- von Haller, Albrecht (1708-1777); Alloy, 53 mm. Artist: Johann Melchior Mörkofer, 1754 (Berne).
- Bert, Paul (1833-1886); Bronze, 68 mm. Artist: Alfred Borrel, 1893.
- Vesalius, Andreas (1514-1564); 6th International Physiological Congress, Brussels, 1904. Bronze, 50 mm. Artist: C. H. V. d. Stappen.

- Vesalius, Andreas (1514-1564); Commemoration of 400th Anniversary of Death of Vesalius, Brussels, 1964. Bronze, 50 mm. Artist: A. ch. Jovenel.
- Botallo, Leonardo (1530-1587/88); 6th National Numismatic Congress, Asti, Italy, 1973. Silver, 52 mm. Artist: Luigi Teruggi.
- Banting, Frederick G. (1891-1941); The Banting Medal of the American Diabetes Association. Bronze, 89 mm. Artist: C.S. Paolo, 1952.
- Szent-Györgyi, Albert (1893-); Bronze, 50 x 82 mm. Artist: István Szentgyörgyi, 1937.
- Hungarian Physiological Society, 40th Anniversary, 1971. Bronze, 90 mm. Artist: Gy. Kis-Kovács.
- Tiedemann, Friedrich (1781-1861); Bronze, 45 mm. Artist: C. Voigt, 1854.
- Fodor, József (1843-1901); 32 mm.
- Boerhaave, Herman (1668-1738); Bronze, 78 mm. Eric Claus, 1968.
- Pasteur, Louis (1822-1895); Bronze, 72 mm. J. H. Coëffin, 1973.
- Freud, Sigmund (1856-1939); Bronze, 76 mm. Barry Stanton, 1973.
- Koch, Robert (1843-1910); Bronze, 50 mm. L. Chr. Lauer, 1890.
- Virchow, Rudolph (1821-1902); Porcelain, 80 mm. S. Schütz, 1971.
- Charcot, Jean-Martin (1825-1893); Bronze, 76 mm. Barry Stanton, 1973.
- Kaila, Martti (); Bronze, 68 mm. Kauko Räsänen, 1970.
- Sharpey-Schäfer, Edward Albert (1850-1935); Bronze, gilt, 50 mm. C.d'O. P. Jackson, 1922.
- Sammelweis, Ignaz Philipp (1818-1865); Bronze, 50 x 80 mm. L. Berán, 1906.
- Tigerstedt, Robert Adolf Armand (1853-1923); Bronze, 55 mm. Ville Vallgren, 1913.
- Loebker, Karl (1854-1912); Bronze, 40 mm. Dan. Stocker, 1912 (?).
- Donders, Frans Cornelis (1818-1889); 9th International Physiological Congress, Groningen, 1913. Bronze, 59 mm. P. Pander.
- Exner, Sigmund (1846-1926); Bronze, 52 x 70 mm; St. Schwartz, 1906(?).
- Jackson, John Hughlings (1835-1911); 2nd International Neurological Congress, London, 1935. White metal, 32 mm.
- Lister, Joseph (1827-1912); 17th International Congress of Medicine, London, 1913. Bronze, 31 mm. Cecil Brown.
- Pasteur, Louis (1822-1895); Bronze, 27 mm. G. Prud'homme, 1922.
- Mingazzini, Giovanni (1859-1929); 7th International Congress of Neurology, Rome, 1961. Bronze, 40 mm. Constantino Affer.
- Berger, Hans (1873-1941); 5th International Congress of Electroencephalography and Clinical Neurology, Rome, 1961. Bronze, 40 mm. Constantino Affer.
- Royal Academy of Science (Sweden). Silver, 30 mm. 1944; and variant, MJV - 1955.
- von Helmholtz, Hermann (1821-1894); Bronze, 51 x 40 mm. J. Tautenhayn, 1894.
- Leidy, Joseph (1823-1891); 50th Anniversary, American Association of Anatomists, 1938. Bronze, 64 mm. R. Tait McKenzie.
- Genersich, Antal (1842-1918); Bronze, 44 x 61 mm. J. Pásztor, 1912.
- Kenyeres, Balázs (1865-1940); Bronze, 61 mm. L. Berán, 1935.
- Fernel, Jean (1497-1558) and Paré, Ambroise (1510-1590); Ecole de Santé. Bronze, 60 mm. N.M. Gatteaux, 1794 (restruck).
- Bichat, Marie François Xavier (1771-1802); Bronze, 41 mm. L. Dubour, 1826 (restruck, 196). (Galerie Metallique des Grands Hommes Français).

- Darwin, Charles (1809-1882); Bronze, 68 mm. Christiane Cochet, 1971.
- Freud, Sigmund (1856-1936); Bronze, 68 mm. A. Guzman, 1956 (restruck, 1971).
- Lamarck, Jean Baptiste de Monet (1744-1829); Bronze, 68 mm. Georges Guiraud.
- Fleming, Alexander (1881-1955); Bronze, 68 mm. R.B. Baron, 1948 (restruck, 1971).
- von Soemmering, Samuel Thomas (1755-1830); Bronze, 50 mm. Christoph Karl Pfeuffer, 1828.
- Reil, Johann Christian (1759-1814); Bronze, 41 mm. J.L. Jachtmann, 1813.
- Hansen, G.H. Armauer (1841-1912); Copper, 40 mm. Josef Langhans, 1973.
- Cajal, Santiago Ramon y (1852-1934); Bronze, 45 mm. Abram Belskie, 1973.
- Ehrlich, Paul (1854-1915); Bronze, 45 mm. Abram Belskie, 1973.
- Eindhoven, Willem (1860-1927); Bronze, 45 mm. Abram Belskie, 1973.
- von Humboldt, Alexander (1769-1859); Porcelain, 80 mm. S. Schütz, 1967.
- Koch, Robert (1843-1910); Porcelain, 80 mm. R. Scheibe, 1935.
- Starling, Ernest Henry (1866-1927); Bronze, 45 mm. Abram Belskie, 1973.
- Copernicus, Nicolaus (1473-1543); 10 Zloty silver coin (Poland), 30 mm, 1959.
- Purkyně, Jan Evangelista (1787-1869); 25 Koruna silver coin (Czechoslovakia), 34 mm., 1969.
- Paracelsus (1493-1541); Bronze, 55 mm. Hans Köttensdorfer, 1962.
- Virchow, Rudolph (1821-1902); Bronze, 55 mm. Richard Placht, 1902.
- von Goethe, Johann Wolfgang (1749-1832); Bronze, 70 mm. Arnold Hartig, 1949.
- von Pettenkoffer, Max Josef (1818-1901); 5 Mark silver coin (West Germany), 29 mm, 1968.
- Rabelais, François (1494-1553); Bronze, 41 mm. E. Gatteaux, 1818.
- Vesalius, Andreas (1514-1564); Bronze, 41 mm. Lefèvre, 1820. (Series Numismatica Virozum Illustratum).
- Cotugno, Domenico (1736-1822); Bronze, 46 mm. V. Catenacci, 1824.
- Tommasini, Giacomo (1768-1846); Bronze, 42 mm. L. Manfredini, 1822.
- Addison, Thomas (1793-1860); Bronze, 45 mm. Abram Belskie, 1971.
- Chio, Vincenzo (1793-1846); Bronze, 44 mm. G. Galeazzi, 1846.
15. Versammlung deutscher Naturforscher und Aertze, Prague, 1837. Bronze, 45 mm. J. de Lerch.
- Babák, Edward (1873-1926); Bronze, 60 mm. V.A. Kovanič, 1973.
- Banting, Frederick G. (1891-1941) and Best, Charles H. (1899-); International Cursus Perfectionis Medicorum, Carlsbad, 1961. Bronze, 75 mm. Milan Knobloch.

DR. D. B. DILL

For many years Dr. Bruce Dill and his Committee have supplied the readers of *The Physiologist* with interesting and newsy letters about and from Senior Physiologists.

It is a distinct pleasure to include in this issue an article about Dr. Dill written by 17-year old Elinor Bean, a student of Dr. Dill's, and published in the July 1974 issue of the *Desert Research Institute Newsletter*.

With typical modesty Dr. Dill reports, "I blush when I read it but I treasure it because it expresses the affection of the students who have been my assistants during the past eight years."

A VENERABLE RESEARCHER WORKS ON IN BOULDER DESERT LAB

At the age of 80, many people consider the most productive part of life to be through. This is not necessarily so, and Dr. David B. Dill, director of the Laboratory of Environmental Patho-Physiology in Boulder City, is an outstanding exception.

Dr. Dill's life has been full and fascinating but the exceptional part is the active life he has led since his compulsory "retirement" at the age of 70.

Since that time his contributions to the field of physiology have included the arrangement of a five-year research project at Indiana University in 1961 on the physiology of aging, reunions of earlier altitude and desert research parties in 1962 and 1964 and, more recently, the establishment of the Desert Research Laboratory in 1966.

Yet, as Dr. Dill himself says, "My work here is all pleasure for me." In exchange for less than \$6000 per year, he puts in an 8-hour day, five days a week plus four hours on Saturday mornings for the convenience of his high school student assistants.

Thriving on his strenuous schedule, Dill celebrated his 83rd birthday in April of this year with a mental alertness and a physical well-being extraordinary in a man of his years.

He rarely asks his students to undertake any task that he couldn't or wouldn't do himself. As an example, he can often be found wielding a buzz saw on the roof of the laboratory corrals, stepping briskly through an endurance walk around the laboratory's desert course, swinging through a game on the local golf course or bowling on the successful league team which he and his wife, Chloris, belong to.

But as Dill himself attests, his greatest pleasure in life comes from his family, including two children and five grandchildren whom he claims give him no worries, and the warm friends he has made throughout his career.

Around his office are testimonials to these lasting ties: greeting cards from round the globe and plaques and gifts expressing the deep respect which Dill has earned from his associates, personal and professional.

Among the most enduring of these relationships are those between himself and his student assistants. Dr. Dill takes an active interest in the youth of his community; he is often better informed about high school activities than the students themselves. As his students graduate and go out to pursue their varied career interests, they keep in touch and frequently come for visits with him which he thoroughly enjoys.

Lean and tan, his blue eyes dancing, he'll lean back in his chair to tell stories of his past experiences, drawn from a wealth of unusual and fascinating material - Dr. Dill has been many places and seen many things in his lifetime.

Born in Kansas and orphaned at a very early age, Dill lived with an uncle in Iowa who, for health reasons, moved to California where Dill graduated from high school in 1908. He went through four years at Occidental College and then went on to earn his MA in chemistry and his teaching certificate at Stanford.

During World War I he worked in a Research Laboratory for the Department of Agriculture and was in on the early years of what is now the Food and Drug Administration. Later, earning his Ph.D. at Stanford, Dr. Dill became a Research Fellow at Harvard after which he became very active in the operations of the Harvard Fatigue Laboratory.

In World War II, he was appointed a Major in the U.S. Army Air Corps and was put to work on the dietary problems of the foot soldier overseas. This work took him all over the globe: the North Atlantic and Italy and the South and Central Pacific.

On his return he found that the Fatigue Lab had foundered and he began working for the Edgewood Medical Laboratories until, having completed 26 years of federal service, he retired at the age of 70.

Dr. Dill's more unusual adventures have included cooking for a household of fraternity members while in college, managing a small ranch in New Mexico at the age of 17, driving a 10-horse team, working in a Colorado logging camp and hopping trains along the west coast.

How has he managed to survive 83 years of the best and worst life has to offer and remain such an active man?

The answer, he says, lies within his optimism, his love of life and his involvement in it - its a privilege for the institute to be associated with a man of these talents.

REPLIES FROM SENIOR PHYSIOLOGISTS, 1974

Letters received in response to our inquiry have given the four members of our Committee much pleasure. As the replies prove, their appearance in The Physiologist pleases and enlightens the old-timers who no longer can attend Society meetings. Many replies are from members about to retire who are seeking leads to further activity. Their availability is called to the attention of department chairmen who have appropriate temporary vacancies to fill. We thank the members who replied and hope all goes well with those who have not replied.

D. B. Dill, Chairman; Hallowell Davis, H. S. Mayerson,
M. B. Visscher, Senior Physiologists Committee

BORN IN 1895

Emmet Carmichael to Bruce Dill:

I have recently retired as Editor of the Alabama Journal of Medical Sciences which I founded and edited for ten years. I have quit experimental work, but continue to write biographical studies about distinguished scientists and physicians. I also present at least one paper per year to the Alabama Academy of Sciences. I have quit golf, but get my exercise mowing my large lawn and working in my flower garden.

Ed Van Liere to Bruce Dill:

I am still continuing in the field of biologic research and for the main part my work deals with hypoxia. I have a comfortable office, a good laboratory and a fine medical library. My home is in Morgantown and presently I have no plans to leave. I am not interested in assuming any administrative position. For twenty-six years I served as dean of the School of Medicine of West Virginia University and was in charge when we developed our four-year program. I have no words of wisdom to pass on to my younger colleagues, except to urge them to do creative work as long as they possibly can.

Ruth Conklin to Hal Davis:

I am thankful to say that at nearly 79 I am in excellent health except for a slowly developing hearing disability and can maintain my home and garden with a minimum of help. As I am close to the campus of Vassar College, I can benefit by many activities that go on there. I am not engaged in any scientific activity nor do I wish an administrative position. I have rejoiced at the completion of a new Biology building at Vassar, long overdue, which has facilities that in a number of respects would be envied by many medical schools. I have been interested in several community organizations, such as driving for "Meals on Wheels" and visiting the sick and elderly.

Baird Hastings to Hal Davis:

Officially, I am a Research Associate in the Neurosciences Department, University of California, San Diego. My colleagues are Livingston,

Bullock, Galambos, and John O'Brien, Chairman. With such teachers, I should be a neuroscientist by now. But I'm afraid I started too late. My heart still belongs to blood, bone, muscle and liver. My headquarters are at the Scripps Institution of Oceanography where I see a great deal of Pete Scholander, who is still brimming with ideas. Although I no longer engage in laboratory work personally, it is still stimulating to be surrounded by young associates who do, and I take special pleasure in following the fortunes of my family of students and post-doctoral fellows. They make aging more palatable. I would welcome a visit from any physiologist of whatever vintage, should you get to Southern California.

Ernest Spiegel to Hal Davis:

Thank you for your inquiry. I do not work experimentally any longer but continue editorial activity.

Carl Dragstedt to Maurice Visscher:

I am growing old at a pace which has greatly accelerated during the past year. I participate in the bimonthly publication - Clin-Alert, which deals with the untoward actions of drugs. I maintain a fairly extensive correspondence with more non-scientists than was the case when active. I read, play scrabble with my wife, and play bridge with a weekly luncheon group. I am not interested in an administrative position, nor am I free to travel about.

Edward Adolph to Hy Mayerson:

My researches consist chiefly in laboratory studies of induced physiological adaptations, especially in developing individuals (rat, salamander). The results can be found in the American Journal of Physiology from time to time. I experience great satisfaction in attending the APS meetings; so many attractive topics and people show there. The International Congresses of Physiology grow stronger every triennium. How does the world support such a burgeoning population of capable physiologists? Evidently our profession is earning its keep. This result means to me that the free play of ideas, refined in laboratories, has made our science strong and fruitful.

Walter McClellan to Hy:

I have enjoyed the letters from our Seniors which have appeared in The Physiologist. I retired in 1953 as Medical Director of the state-owned Saratoga Spa at Saratoga Springs, New York. From 1954 to 1966 I was a part-time lecturer in the department of physiology of the University of North Carolina, Chapel Hill. I gave my last teaching lecture in March 1966. It was titled "Physiology of Aging" and was delivered as a part of a course in gerontology for the senior class in the Dental School. In 1966 I came down with a severe and extensive diverticulosis from which I have not recovered so that I am unable to do any work. In the past eight years I have spent more time in hospitals and nursing homes than I have been in our apartment. My wife is also incapacitated and for the past three years we both have lived in a nursing home.

Isaac Starr to Hy:

I appreciate your efforts for all us old fellows. I am still working actively, full-time, except that I get in at 10 AM and take two months off in the summer. I have a small laboratory and an office. My research is financed partly by fees set by the hospital for cardiac testing (ballistocardiogram and pulse derivative) which I perform for any doctor who asks for them. The balance I raise myself. I still publish about two papers a year and, with an occasional exception, editors still like what I put out. I was on the program of the APS in Atlantic City last April. I am stimulated by working with three groups of young men: bio-medical engineers who have been a great help to me; surgeons, whose patients I test before and after cardiac operations; and cardiologists, and I think I am of some help to them. I have enjoyed retirement hugely and it has affected my life very little to date.

Florent Franke to Hal:

The "News Items from Senior Physiologists" have always been of great interest to me. I also appreciate the concern which the Society has for its senior members. It is eleven years since I retired from the physiology department of St. Louis University after teaching there for forty years, preceded by five years practicing medicine with my father at Newton, Illinois. For two years after retirement, I did some research and published a couple of papers. I have four living children and thirteen grandchildren. One daughter is a librarian and lives with us. We have many family gatherings for birthdays, anniversaries, etc. We try to encourage but not dominate our teenage grandchildren and are happy when they confide in us. My favorite recreations are fishing, playing pinochle and pool. My wife and I usually go to Lake Norfolk each summer to fish. This spring I fished in the Gulf of Mexico and caught a 5-1/2 lb. red snapper (a record fish for me). I enjoy the news on TV and the Cardinal baseball games on radio. I get to mass daily and participate actively in a parish lay organization. We will celebrate our 50th wedding anniversary in four more years.

Larry Irving wrote Hal:

I have just returned from a four-month siege of treatment at Seattle for a cancer that is so popular with old men. While observing the enormity of the institutions for treating our health I have refreshed associations with clinicians and thought deeply of the profound influence they have had upon the scientific progress of physiology, in addition to their devoted concern for our personal and public health. Reflection of experience makes me think that physiology would be a poor kind of science if it had depended solely upon academic support. The powerful personalities and resources of clinical medicine have developed physiology, and even more biochemistry, to their present greatness and, what is infrequently mentioned, their cultural importance in the intellectual base of social knowledge. I think that we should freely speak of the important relevance to human culture that is derived from the funds and efforts that society applies for the protection of health. If they had to depend upon support of academic studies physiology and biochemistry

would have been only trivial contributors to the knowledge that gives us some pleasing understanding of life.

Hugh Dukes to Maurice:

My wife and I moved into an apartment in a new retirement center, Scottish Rite Park, in Des Moines last winter and we have been quite busy ever since. There are many activities here. My health is good and that of my wife is generally good. I enjoy walking for exercise. I received the Distinguished Physiologist Award from the American Society of Veterinary Physiologists and Pharmacologists which met at Cornell University in July 1973. My book "The Physiology of Domestic Animals" became in 1970 "Dukes Physiology of Domestic Animals," 8th edition, Melvin J. Swenson, editor. There are some 40 contributors. A 9th edition is in preparation under the able editorship of Dr. Swenson.

BORN in 1896

Victor Guilleman to Bruce:

Eileen and I fill our days comfortably with household and garden duties and reading and taking walks. I am thinking seriously of getting back to my book on Time, of which I have three chapters in essentially final form and in which I am much interested. I still try to keep up with literature in physics, astrophysics, and some fields of biology, but that is the extent of my activities professionally. I had a long discussion just recently with E. C. Kemble, formerly head of the Harvard physics department. He agrees that theoretical physics, now in the hands of terrifically active young fellows, is now so abstract and full of esoteric math that those on the sidelines are hopelessly outpaced. Even some of the younger men have no taste for this and, as you may have noticed, are turning to problems in other fields, including biology.

Walter Fleischmann to Bruce:

I was asked to continue as consultant to the Laboratory Service of the VA Hospital Mountain Home in Johnson City, Tenn. My duties there consist mainly of arranging and monitoring C. P. C. conferences alternating with two full-time pathologists on the staff.

Chauncey Leake to Bruce:

I seem to be busier than ever. I get to my office at 7:00 AM each day except Sunday, go home or to the club for lunch and quit for the day at 4:00 PM. This gives me just enough time to get some reading done, or go to the Symphony or Opera with my wife. Once a month I go to New York for a Board meeting, and thrice yearly to the great Motorola Executive Institute at Oracle, Arizona to give a quick seminar on Practical Philosophy: The Ethics, The logics and the Esthetics. During the summer I enjoy the festivities at the Bohemian Grove, where I still run the lights for the big Concert-at-the-Lake. I'm teaching two courses: 1) The History and Philosophy of the Health Professions, open to anyone who wants to attend, 2) Practical Philosophy: the Ethics, the

Logics and the Esthetics. The latter is offered for the benefit of candidates for the degree of Doctor of Philosophy, since few Ph.D's ever think of philosophy. So few candidates attend. Mostly attending are keen students, some faculty members, and physicians from the Bay area, and also secretaries and janitors. This philosophical effort is resulting in a trilogy, which is being published by PJD Publications, 10 Oakdale Dr., Westbury, NY 11590. The Ethics is out; The Logics is due this summer; and I'm struggling with the Esthetics. My Historical Account of Pharmacology (to the 20th Century) is to be published next year by C C Thomas, again with no royalty for me. Except for professional writers, I think royalties on books are the bunk; more trouble than they are worth! But my translation of Harvey's De Motu Cordis, first issued by C C Thomas in 1928 is now in its 5th edition and still selling! Amazing to me is the current excitement over "medical ethics." Real moral problems are now being mulled over, whereas previously, it was more a matter of etiquette than of ethics. So my 1927 book on Percival's Medical Ethics has suddenly become a classic, and is to go into a second edition next year, after nearly half a century! A couple of years ago, Elizabeth and I celebrated our 50th wedding anniversary with a big bash (over 400) at the Bohemian Club. There was much fun over our baby pictures. It's great to feel young!

Warfield Firor to Hal:

I did work in the experimental laboratory for ten years. While there I demonstrated the effect of hypophysectomy in every phase of pregnancy in rabbits. I introduced intestinal centisepsis for preoperative preparation; I published on cross-circulation in dogs and worked with Thorn on implantation of DOCA pellets for treatment of Addison's Disease and with Grollman on the adrenals. I am participating on the periphery with the studies of Isaacs on the use of trace minerals on resins in coronary heart disease. In my spare time, I write for theological journals. The work of Isaacs with trace minerals in proper combination with vitamins C & E, and hormones is extraordinarily important and basic to cellular physiology.

Hal Davis to Maurice:

I am happy to say that I am one of the fortunate ones who has been allowed to continue on in his office and laboratory without administrative responsibilities and on a progressively reduced schedule of hours. This has been possible because Central Institute for the Deaf is a small and relatively young organization without rigid rules for retirement, and we are all very good friends. I still teach an elementary course in anatomy and neurophysiology in our teachers training college, I am doing a fair amount of writing and I participate in clinical testing of hearing of young children three days a week. From time to time we also have a spurt of laboratory research. All of this is part of a rather frantic effort to put on a solid foundation the method of electric response audiometry. The method is based on my old love, electroencephalography, with the help of a small average-response computer. The development of this method has been my objective since 1960. We have come a long way, but it has been very frustrating to find that the children for whom

our test has most to offer, namely the very young and the hyperactive, must be given a sedative, and when they are asleep the electric responses to sound are not such sensitive or reliable indicators as they are when the child is awake. I think the method is here to stay, but it is neither as easy or as accurate as we had hoped it would be.

Florence and I have decided to retire, when the time comes, in our home in University City, just west of St. Louis. This is a very interesting neighborhood that is now integrated and we hope to help stabilize it in approximately its present pattern. We both manage to keep our health. We are confirmed members of the "jet set" and we go to two or three meetings or symposia a year, combined with vacation travel. I am quite selective now and rarely attend a meeting unless by invitation or to do honor to an old friend, but we still get to Europe about once a year. My favorite affair there is the biennial symposium of the International Electric Response Audiometry Study Group, of which I have been chairman since we organized in 1968. Another pleasant trip was to Milan last year to receive the International Amplifon Prize for my work on the development of electric response audiometry. All of this means that I am now a big frog in a small puddle, and am glad to be able to hop along still at my own pace.

Harvey White to Hy:

I am not doing anything. I have had enough coronary occlusions in the past few years to keep me from doing anything useful. I did spend five years at part-time work examining school children, since my retirement in 1965. I am not doing any scientific work or writing. The little writing that I do consists of translations of Latin and French poetry for my own amusement and that of my friends. I am not interested in a position that would entail either scientific or administrative activity.

Richard Whitehead to Hy:

I am now past seventy-eight and in reasonably good health. I must now wear a hearing aid which helps considerably. A bout of rheumatoid arthritis and neuritis during 1972 and early 1973 resolved in my favor. I retired as Executive Secretary of the Colorado Medical Alumni Association in September 1972. Since retirement I have spent part-time as a consultant in pharmacology for an Indiana company. More recently I have been helping Dr. Oliver Stonington, Professor of Urology at the University of Colorado Medical Center with research on cancer of the prostate. My part, thus far, has been principally bibliographic. As you know, the literature of cancer immunology is extensive and controversial. The remaining time at my disposal is spent in reading, writing and attending meetings. I am not seeking employment but would accept a suitable administrative position or one in cancer research in an area with which I have some familiarity.

BORN IN 1897

Lee Wyman to Bruce:

I have been retired 12 years now, and since retirement I have published five books and quite a number of articles. I have a book and a long article now in press, and at present I am writing another rather substantial book. None of these are in physiology. All are in my other interest, Navajo Indian religion, mythology and art. After forty years of physiology I wanted to devote all my time to this other interest. The book I am writing now is a general work on Southwest Indian drypainting. The School of American Research in Santa Fe asked me to do it for an elaborate new series they are going to publish on Southwest Indian arts and crafts. I lived with the Navajo every summer for years and have published maybe over 150 books and articles about their ceremonialism (religion), mythology and art. After 40 years of teaching and research I decided I had enough and did not accept any of seven offers of continued gainful employment which were offered when I retired. We have traveled a great deal over the years - 45 countries in Europe, Middle East and Asia so far. My advice to new retirees - when your time comes, retire and do the things you always wanted to do and had no time for. You will find you cannot do all of them anyway even if you live to be 100.

Ernst Fischer to Hal:

With 78, I am not yet so demented that I want any scientific or administrative official position. I enjoy limited scientific and literary activities. I spend three to four mornings in my office and laboratory or in the library of the Virginia Commonwealth University. The rest of my time I enjoy gardening, travelling and visiting the children and grandchildren. My health is still O.K., although my speed and endurance of walking is much diminished. Thanks again for the interest.

Harold H. Cole to Hal:

I'm still teaching and doing research at University California, Davis, where I began my professional career 46 years ago. It is unlikely that my teaching will extend beyond the present quarter. As I did not request a renewal of my research grant for 1974-75, activity in this area will depend upon special sources of funds. I am currently Chairman of a Subcommittee on Hormonal Residues in Edible Animal Products, American Society of Animal Science. Also, I have the good fortune to be the recipient of the Carl G. Hartman Award for 1974 of the Society for the Study of Reproduction and will present a lecture at the annual meeting of the Society in Ottawa. A book, *Animal Agriculture*, edited by Dr. Magnar Ronning and myself has just been published by W.H. Freeman and Co., San Francisco. With these manifold interests, I am reluctant to consider any position elsewhere - at least until after I have "caught my breath." The Committee is performing a fine service for Senior members of the Society.

Edward Larson to Maurice:

Your letter finds me retiring the second time. The University of Miami, Biology Department, retired me about five years ago. My research work on *Sphoeroides*, the puffer fishes, was continued at the North Campus of the University of Miami for about two years. Then the building was demolished and the site was utilized by the City of Coral Gables. Since that time I have been a visiting scientist at the Miami Seaquarium where work has continued on: Maintenance of Toxicity in *Sphoeroides*; Tolerance in *Sphoeroides* and Toxicity of *Sphoeroides* to Other Species. Manuscripts on the three topics are "just about" ready for press. About a year ago I was invited to be a symposium speaker at the Annual Meeting of the Herpetologists and Ichthyologists in Costa Rica but had to decline. In November 1971, with my students, a paper was presented at the Symposium on Physiological Compounds at St. Petersburg, Florida. "The Source of the Toxicity of Puffer Fishes, Genus *Sphoeroides*" by Larson, Edward, Grossman, J., and J. Klinovsky will be published by Marcel and Dekker, New York, 1974. All the speakers were given a diploma-like plaque by the Mayor - Honorary Citizen of St. Petersburg. About 6 months ago, the M.D. started to remove the crystalline lenses in both eyes, after some adjustment of the fitted spectacles I am seeing well. Retirement is now literally true because of osteo-arthritis and I have become another analyst, i.e. depression, inflation or what have you. Physically I am "mama's little house plant."

Heinrich Necheles to Maurice:

I was retired in 1967 as head of the department of gastroenterology at Michael Reese Hospital. However, I have continued working part-time in my laboratory up to now. One reason is that the administration of Michael Reese Hospital has not found a successor to my position. I am in the process of retiring to California, where we have bought a small house in Walnut Creek. I had to sell a good part of my Chinese collection which I had acquired during my stay at The Peking Medical College from 1924 to 1931. Presently we are trying to sell our nice little house in Madison Park in the Hyde Park district. My eyes have suffered to a degree that I cannot read small print. However, I keep up with listening to medical reports on tape and all kinds of other literature on a tape recorder at home. With my impaired vision I do not think that I will be able to take on another position; but I have made contacts with hospitals in Oakland, where I may give seminars and teach. Mrs. Necheles, a psychotherapist, may be able to practice in our new location. Both of us are in fairly good health and I hope will enjoy life in the West. Parting from our grandchildren living in Chicago will be painful, but we hope to see them once or twice a year. Presently with my group I am completing our last two scientific papers. One of them is on our finding of something in the blood of patients with peptic ulcers that contracts smooth muscles and is either not present or present in small amounts in blood of normal controls. Lack of funds and personnel forces us to terminate this work, which I believe offers clinical and scientific results of some importance. A word of wisdom for younger colleagues: If you have a Ph.D., get an M.D. in addition, so you will be independent of the rages of unemployment in our undulating economy.

Det Bronk to Hy:

It was good to hear from you and to know you are still actively engaged at the Touro Infirmary. I had expected to be in New Orleans for the meeting of the Board of Visitors at Tulane, but conflicting engagements kept me away for the third year hand-running. I hope to get down next year and if so, hope to see you.

Anna Goldfeder to Hy:

I am happy to inform you that I am continuing my research activities as in previous years and publishing in various scientific journals. These can be found in the Index Medicus, etc. The younger generation of scientists should exert every effort to pursue their research endeavors as long as it is possible, in spite of difficulties and obstacles along the way.

Roberta Hafkesbring to Hy:

After 34 years (21 of which was spent as Chairman of Physiology Dept.) at Woman's Medical College in Philadelphia, I retired in 1964. I left immediately for South Korea where I taught physiology for two sessions in the Medical College of Ewha University in Seoul. During the period 1966-71, I made four trips to Seoul, and was put to work each time. At present, after four retirements, I have a home in Leisure World, Laguna Hills, California. My life is by no means "leisurely." I keep well and very busy with Church and Community work. In 1939 Ewha University gave me an honorary degree in Medical Science at a special convocation.

BORN IN 1898

Eleanor Mason to Bruce:

I am not now involved in any scientific work. But for the last eighteen months I've had a very interesting new sort of work, on a volunteer basis, having been invited to be receptionist, archivist and a sort of assistant-secretary for my church in Boston, a large and wide-spread parish. An interesting assignment has been on a committee to look into funeral and burial arrangements and costs, the purpose to be able to offer parishioners a framework for simple but reverent, low cost funerals, including alternatives of burial or use of our columbarium, or anatomical donation, and to encourage pre-planning before the event. It is an interesting and, I think, useful bit of work. I am very well. I've had glorious opportunities. For each of us, in these later years, one faces the prospect of living with one's self, the kind of person one is, wherever one is, and as at all stages of life, one sees among our contemporaries beautiful, generous gallantry.

Ernst Simonson to Bruce:

The NIH grant "Spatial electrocardiographic vector analysis" has just been renewed for the duration of three years. Two applications (ECG exercise standards for women and VCG code for epidemiological studies) are pending. I am assembling now the volume "Psychological

aspects and physiological correlation of work and fatigue" as a sequence to "Psychology of work capacity and fatigue"! I am also responsible for clinical vectorcardiography at the Mount Sinai Hospital.

Eugene Still to Bruce:

My health remains excellent. The same things that interested me in the past still do. They are - but not necessarily in this order: I have long been interested in two, small, privately endowed, non-profit research laboratories. They are investigating the ecological and biological aspects of our gulf coast. I find these fascinating subjects. Especially those concerning the red tide and the changing fauna of our local waters. I no longer sail my own vessel. However, I shall always be a sailor at heart. Familywise, I am very fortunate. My family is intact. My two sons are making progress. The grandchildren are promising. Josephine, my wife, is active, interested and well. Your notes in *The Physiologist* have caused some pleasant events for me. Several of my students and colleagues have written me, and a few have visited with me in Sarasota. It is pleasant to renew friendships.

Phoebe Crittenden to Hal:

Last summer I sold my home in Vermont and in November came to Florida to become a member of the Sunny Shores Villas Community - the first retirement home in Florida, located on the shore of Tampa Bay in southern St. Petersburg. There is an interesting group of people varying in age from the late sixties to the late nineties. There are at present about 250 people here. The situations which present themselves to each due to the frailties of advancing years fascinate me. "There but for the Grace of God, goes me." Yet if these people only knew more about themselves physiologically, how much easier it would be, I believe, to cope with their problems and understand the problems of others. Hence they would be more charitable. Life for me has been changed greatly. I am enjoying the passing of many responsibilities, with time to read, enjoy some of the programs of Public Service TV and good music on the Southern Florida Radio Station. I like the St. Petersburg Times, it in general is fair. If I were to give a message to the younger generation it would be: The future is yours, use it wisely, unselfishly, keeping in mind the welfare of all life and the planet - Earth, which has been so unwisely and selfishly abused.

Walter Redisch to Hal:

After retiring from NYU, I accepted a "visiting" position at the New York Medical College. I am, consequently, continuing with scientific writing. As I have stated on previous occasions, I would even be ready to accept an administrative position, if I could do some good, in the sense of helping restore our original academic set of values. Another area? Why, certainly! I can hardly imagine an area less desirable than New York City. As to words of wisdom, I have none, which would not have been said before by better men than I. What is uppermost in my mind are two convictions to pass on to the young ones: Biological (as all other) truth always and invariably prevails in the long run. No

real advance in medicine is possible without "pure" research, the "practical application" of which should preferably not be rigidly and narrowly defined in advance.

Wallace Armstrong to Maurice:

In many ways, I shall be glad to be relieved of the intricacies of departmental affairs, but I regret that I shall be removed from my teaching roles. Retirement has with it some aspects which will undoubtedly be pleasant, but I know that on the first of July I shall feel a great loss not to be longer involved in the affairs of the Medical School and University.

Owen Wangenstein to Maurice:

When my wife, Sally, and I had been married almost a year I asked her: "How do you find marriage?" Quite spontaneously she remarked, "Not half as bad as I had thought it would be." Such in essence has been the nature of my retirement, that began approximately seven years ago. I am fortunate to have a small laboratory and a nice office in the History of Medicine Section of our Bio-Medical Library. My patients and their friends helped many years ago to bring both laboratories and the library into being. Very graciously the University repaid me with the very nice opportunity to continue my work. I have always held to the thesis that opportunity is the finest of all paymasters. I continue active in research and have been fortunate to have some of our work accepted for publication. My only contact with clinical surgery is at meetings. A goodly segment of my research relates to historical aspects of the chaotic state of pre-Listerian surgery, an effort which Sally and I pursue jointly. It is a fascinating study and we have managed to grind out a few papers. Sally has a major in English and History and considerable experience as a medical editor. We have no thought of leaving Minnesota, despite our stern winters; the internal climate of the University of Minnesota is warm and hospitable. Atmosphere, unlike baggage, is not transportable. As man and boy, I have been privileged to spend almost 60 years in this great University. No one has yet suggested it is time to hang up my spurs. Satisfying work is, after all, one of life's great rewards.

Bill Windle to Hy:

I am working on several projects: revising a book; doing a bit of editing for Experimental Neurology (I'm now emeritus editor); and conducting nerve research on an NINDS grant in spinal-cord regeneration. I have one graduate student who got her M.S. at OSU last March. My wife and I spent the winter quarter at UCLA and I will continue to collaborate with Carmine Clemente there. My wife and I are planning a trip to the USSR in September to visit investigators who are working on CNS regenerative phenomena. A year ago I had an abdominal aortic aneurysm out at the University Hospital in New York and am now back to normal. In fact, I think I am as healthy as can be expected of one approaching 76. Active retirement can be very pleasant.

John Sampson to Hy:

I have just finished a month "attending" the medical wards of the University of California Hospital. As always this was a challenging exercise, working with residents, interns, and fourth year students. My faculty appointment still comes through via approval of the Board of Regents because of seven years past customary retirement age. Am engaged in a project on the evaluation of non-compliance of patients - the pulmonary lymph project dropped last year but which may be renewed. Have been involved in cardiology affairs as Vice President of the Interamerican Society of Cardiology which will be meeting at committee and "Board" levels at the VII World Cardiology Congress in Buenos Aires in September 1974. Rose-Etta and I will participate after a pleasure trip on the Baltic Sea in August.

BORN IN 1899

Maurice Tainter to Bruce:

I am happy in the continued evidence that you, my dear friend Maurice Visscher and others in the Society cherish the memories of their superannuated and progressively more senile members! I manage to maintain a distant connection with Visscher through our mutual interest in the National Society for Medical Research, otherwise I am afraid my scientific connections are unfortunately restricted mainly to pharmaceutical industry oriented bureaucrats in Washington. I have been for several years functioning on a part-time basis as a medical consultant to Sterling Drug, Inc. and Winthrop Laboratories in a restricted field of interest where I have had some special medico-legal expertise. This arrangement terminates in September and thereafter I will be free of all commitments, other than those of several voluntary philanthropic Boards where I contribute a minor amount of time and energy.

Francis Lukens to Hy:

I am still full-time with the VA Hospital and the care of the chronically ill provides a small groove in which I can still feel a little useful. Planning is in the day-tight compartments as worded by Osler.

Charlie Best to Maurice:

The years 1971 and 1972 were very busy ones for Margaret and me. We travelled constantly and joined the 50th Anniversary of Insulin celebrations in many places - England, Holland, Denmark, Italy, Brazil and Israel as well as in many parts of the United States and Canada. I lectured and participated in Seminars in all these places. There were many exciting events - in London, Her Majesty, Queen Elizabeth awarded me the Companion of Honour. I read the Lesson in St. Paul's Cathedral at a service of Thanksgiving for Insulin, attended by twelve hundred diabetics and their relatives, and gave a lecture in the Royal Society. There were many profitable scientific sessions in Israel and when in Jerusalem we were fortunate in having several fascinating trips to the

Old City. Christmas Eve we spent in Bethlehem and on our last night before leaving for home we attended a beautiful wedding (that of a friend's granddaughter) solemnized amid a bower of white blossoms in a country church outside of Tel Aviv. In Brazil I had the misfortune to contract pneumonia but with Margaret's constant nursing and the most efficient of doctors in attendance I was soon able to leave the hospital and fly home. When in Rome we recalled with great pleasure our first visit there when we attended the International Physiological Congress in 1932. We were among the "younger physiologists" at that time! On the occasion of our 1972 visit I had the pleasure of lecturing on "The History and Present Position of Insulin" at the Pontifical Academy of Sciences. Nineteen hundred and seventy-three was much quieter as Margaret was ill with recurring heart trouble but she has regained her strength and we are once more going a little further afield. Although officially retired, I am still on the teaching staff of physiology and am a consultant in the Banting and Best Department and have my office here at the Institute. In addition to my appointments in the University and to various Foundations and Medical Societies, I lecture a good deal to Diabetic Associations, write for scientific publications, and try to keep up with the literature - particularly that dealing with diabetes and insulin.

Hudson Hoagland to Maurice:

As to what I am doing now - I shall be 75 in December and I retired at the end of 1968. I still keep my office and go in each day. I have just completed two small books, one called "The Road to Yesterday", which is autobiographical and also deals with the history of the Worcester Foundation, and the other is called "Science and Human Affairs", which is an expression more or less of my own philosophy, for what it may be worth. I am fortunate in having the same secretary who has been with me since 1931. My son Mahlon is the Director here. He is the senior discoverer of transfer of RNA and its activating enzyme systems. He came to us from his position as head of the department of biochemistry at Dartmouth Medical School in 1970. The Search Committee, of which I was not a member, made him its first choice but he turned us down for two years, finally accepting, after we had had an interim director. My interests have shifted from scientific activities into the field of social problems in relation to our times in which science and technology are so deeply interlocked, and I am not interested in any position elsewhere. My wife of fifty-three years died about a year ago from a long illness with emphysema. My son, Mahlon, and his wife have moved into our house in Southboro. Their children are grown up and mostly married and we three are very congenial. I do take trips from time to time because of my amateur interest in archeology. I find as I have aged that one of the appalling things is how rapidly one loses track of the science in which one has spent his life. I no longer know the young people who are doing the work and their names mean nothing to me. My contemporaries are either dead or retired and one is struck by the great gap that opens between one's past professional activities and the present. There seems to be no turning back on this road. We do other things as we age but I know so few scientists who ever returned to the laboratory with any effectiveness after 65 and most do not do so after 55. I think science is a little like athletics. No man

at 50 could become a national tennis champion and for scientists the really creative years are the 30's and early 40's in my opinion.

Beecher Weld to Hy:

Although completely retired from departmental duties I attend some seminars, work on various boards and committees, garden, paint (picture and house), travel, and enjoy grandchildren. The academic work flourishes under younger, more vigorous hands.

BORN IN 1900

Helen Hegnauer writes of the death of her husband Albert H. Hegnauer last winter. This occurred only a year after they settled in Newport, Rhode Island, partly to be near their son and family. Friends can reach Mrs. Hegnauer at 23 Willow Street, Newport, RI 02840.

E. S. Nassett to Maurice:

It is comforting to know that the Society continues to have a group of members detailed to differentiate between the quick and the dead among those of us born between 1894 and 1910. I became Emeritus Professor of Physiology at Rochester at the end of 1965 and left then to be Visiting Professor at George Washington. Late in 1966 I moved to Berkeley as Lecturer and Research Physiologist in the Department of Nutritional Sciences at the University of California. I still retain the lectureship there and in alternate years give courses in GI physiology and science writing to graduate students. In 1970 I moved my research program to Children's Hospital in Oakland. A postdoctoral fellow, now in his second year with me, was successful recently in getting grant support from NIH to continue his work on protein digestion in the conscious animal. This month, University of California, Berkeley will grant the Ph.D. degree to a student who carried out her dissertation research in my lab. She now has an appointment as assistant professor at University of California, Davis. In the lab we manage to keep three technicians busy and we all are having a marvelous time working in GI physiology. I have organized a symposium, "Amino Acid Homeostasis" to be held at the International Congress in New Delhi in October.

Julius Sendroy to Bruce:

Since my retirement from the Naval Medical Research Institute and the Bureau of Medicine and Surgery of the Navy Department in 1970, I have served as a consultant to the Navy Medical Neuropsychiatric Research Unit here (soon to be expanded as the new Naval Health Research Center) at San Diego. I have also had a hand in the annual report of the Bureau's Independent Research Program. I manage to keep up with research activities in clinical chemistry and physiology, and to attend national and international meetings of chemists and physiologists. However, I find it difficult to devote sufficient time to write up past work for publication, or to keep pace with the demands of a new life in a home at Rancho Bernardo, some 25 miles from the center of San Diego.

As the numbers of our generation diminish, it is an increasingly greater pleasure to have old friends visit us as they come to or pass through San Diego, and to maintain the contacts of the past, as with Baird Hastings, who lives at La Jolla, some 20 miles away.

John C. Scott to Hy:

I am enjoying an active life at Hahnemann in the Department of physiology and biophysics.

Gerry Evans to Hy:

Still active and well, free and happy - except for laments on the turn of society.

BORN IN 1901

John Bean to Bruce:

Since my formal retirement, Dr. Davenport has generously permitted me to continue with some research here in the Department, primarily on hyperbaric oxygenation, etc., which has been my chief research interest. Your mention of Gesell - a name some of the senior members may still remember with some emotion - reminds me of his early insistence on the threat of the "O Bomb" as he called over-population in the mid-forties. This became routinely the subject of his last lectures of the year in physiology to the medical students. Gesell had written a letter to Dean Furstenberg, the Executive Committee, and the faculty urging the inclusion of the study of "the population problem in medical education." At a faculty dinner shortly thereafter, we were sitting next to Dr. Sturgis (Chairman of the department of internal medicine), and I well remember remarks of Dr. Sturgis, characteristic of the faculty at that time: "Oh, Gesell, that will never be a problem." Sounds like a man before his time.

Aldo Luisada to Bruce:

I obtained a position at the Oak Forest Hospital in 1971 and have been engaged since then in building, equipping, and staffing a modern Department of Cardiology in this 1800-bed Geriatric and Chronic Disease Hospital. The results of these three years of activity have been comforting because I now have an active research department and a staff of 5 physicians and 5 technicians. We are, of course, involved also in patient care with, I hope, some benefit to the patient population. My research has progressed mostly in the field of non-invasive diagnostic methods including electrocardiography, vectorcardiography, arterial and venous tracings, phonocardiography and echocardiography. I devoted myself largely to the development of new methods of investigation, and have conducted extensive studies in normal subjects, from children to old people without evidence of heart disease. I have several papers printed, in press, or in preparation. Some of them tabulate the normal cardiovascular parameters at various ages, which will be useful for future studies. With the help of some of my old co-workers, I have

been able to perform a few animal experiments without creating a scandal in this institution. Due to careful programming, even these few experiments turned out to be extremely useful for some of our studies including one "On the Unitary Nature of Cardiac Vibrations" and one on the "Tricuspid Component of the First Sound." I have given talks here and there, and have been requested to write three chapters in three different books. The last one, on "Hemodynamic Pulmonary Edema" should appear next year. I am now preparing the organization of a Critical Care Area and a Laboratory of Catheterization, which will turn out to be of great interest to us in the future.

"Sandy" Sandow to Bruce:

The Institute for Muscle Disease, where I worked as Member and Chief of the Division of Physiology since 1959, has closed down as of June 1974. However, I have been able to relocate my laboratory at the department of biology, New York University, where I have been appointed Research Professor. I am being supported both for salary and general research needs by the Muscular Dystrophy Associations of America and I also have generous support from NIH. So, my staff and I will be continuing our research quite as at the Institute for Muscle Disease. Thus we will be working on various problems of basic physiology of contraction and relaxation in both healthy and dystrophic muscle of various animal species, the studies on dystrophy (in the mouse) being so oriented that we hope to help determine whether that disease is primarily of neurogenic or myogenic origin. I should add that besides the above, I shall be consultant on basic muscle physiology to Joseph Goodgold of the New York University Institute of Rehabilitation Medicine in especial connection with his program of research on muscular dystrophy in the human. Furthermore, I shall also continue giving my graduate course in biophysics at the University Department of Biology.

Howard Bartley to Hal:

The letters from the retirees form a very interesting and gratifying section of *The Physiologist*. It is amazing what some of the older men are still doing. I am presently on the campus of Memphis State University as a Visiting Distinguished Professor in Psychology. I am free to use my time as I see fit. This semester I team-taught in a course on sensation and perception. I've agreed to do this again next Fall. I spend most of my time in both scientific and more general types of writings. One of these endeavors has been a sort of autobiography as a means of expressing some views on the contrast between human tendencies toward scholarliness and mysticism. Another has been a document called "A View of Man." This is something that has metamorphosed from an intended text on physiological psychology.

Gene Landis to Hal:

Doing now? It's May so I'm spraying against sundry insects, transferring seedlings and winter-grown cuttings from my basement fluorescent light garden to outdoors, catching up on emergency tree surgery to repair winter storm and fungal lesions of some friends in our woods

(mostly oaks in their 70's and 80's), attending biology seminars at nearby Lehigh University and other avocations too numerous to list. Free to move? No. In fact, can't bear the thought of leaving, even temporarily, our hilltop acre of old woods, wild flowers, birds, bees, skunks, possums, groundhogs, deer, wild turkeys, etc.

Leon Saul to Hal:

I am sufficiently recovered from my myocardial ischemia of three and a half years ago to be practicing regularly and to be writing books - finished very extensive revision of "Technique and Practice of Psycho-Analysis", now titled "Psychodynamically Based Psychotherapy"(pause to catch your breath) - 822 pp. \$20 retail! Am now revising "The Hostile Mind." I have started making tapes for cassettes, in connection with the book and also for Behavioral Science Tape Library. None have yet appeared but they are fun doing. I am grateful for being able to work steadily and not only content but happy here and therefore have no interest in changing but the idea of doing "something other" from age 70 to 80 is an appealing idea. If I should, by any chance, it would probably be in the field of my first interest - thermoelectricity.

Maurice Visscher to Hal:

In the four years since I have retired I have managed to keep myself about as busy as I ever was before. The University of Minnesota and the Minnesota Medical Foundation have been very generous in supplying me with office and laboratory space, and until now I have been able to get adequate grant funds to continue some scientific work with several associates. My interests have been narrowed for the time being to calcium ion fluxes in relation to excitation contraction coupling in heart muscle. In addition, I have been doing a fairish amount of writing and editing. I edited a monograph published by the Prometheus Press on "Humanistic Perspectives in Medical Ethics," and I am at the moment writing another monograph for C C Thomas on "Ethics in Medical Research - Constraints and Imperatives." The title may give some clues as to the points of view that will be expressed. I have no intention of either leaving Minnesota or giving up my activities unless failing grant funds force me to. I am skeptical about the immediate future on this score, because of impoundments and shifting to contract rather than grant research support. However, I hope for the best.

Chalmers Gemmill to Maurice:

I have been retired for two years. My time has been taken up with writing on medical, historical problems. I am not continuing scientific activities involving laboratory work. I would not be interested in a position involving scientific activity or administration.

Joe Hinsey to Maurice:

I am writing to express my appreciation for the work which you and your colleagues on the Committee are doing. I follow the letters and notes in each of the issues of The Physiologist with great interest.

I am much impressed with how many are continuing to make significant contributions. As one who became involved in administrative responsibilities in the midst of my career, I no longer continue any scientific activity but I am called upon from time to time for advice and consultation regarding problems in medical education. Recently I was called on for a chapter describing some of my activities in the field of Neuro-endocrinology for a book dealing with its history. I had a lot of fun in digging into my past activities in that field and associations with dear friends of years gone by.

Henry Ricketts to Maurice:

In answer to your questions, I have two jobs. I participate in a faculty health program at the University of Chicago two or three days a week, and I spend two days at the AMA evaluating manuscripts and assuaging disgruntled authors in addition to doing as much editorial writing as I have time for. The remaining questions must be answered in the negative - I am happy as a clam, both in my activities and in my home of nearly forty years in Hyde Park. Although in the seventies, my wife and I still sail on weekends and have just bought a smaller boat to make it a little easier.

Ross A. McFarland to Bruce:

Dr. McFarland wrote Dr. Dill that he has an office in the Countway Library where he is continuing his writing. He enclosed a Harvard announcement of a great honor bestowed upon him recently.

Ross A. McFarland of Cambridge, Mass., and Dublin, New Hampshire, the Daniel and Florence Guggenheim Professor of Aerospace Health and Safety, Emeritus, at Harvard, this week (June 25) received the 1974 Laura Taber Barbour Air Safety Award administered by the Flight Safety Foundation, Inc., Arlington, Virginia. Dr. McFarland received the Award at the June luncheon meeting of the Aero Club of Washington, D. C., held at the Army & Navy Club. He was cited by Mark E. Kirchner of the Boeing Commercial Airplane Company, chairman of the Award board, thusly: "For establishing the world-renowned Guggenheim Center for Aerospace Health and Safety at Harvard University, thereby inducing others to follow and practice in his footsteps." The Laura Taber Barbour Air Safety Award was established in 1956 by Dr. Clifford Edward Barbour, then pastor of the Second Presbyterian Church in Knoxville, Tennessee and his son, Clifford, Jr., in memory of Mrs. Barbour, Sr., who lost her life in an airplane crash in 1948. The annual Award consists of a gold medallion, a certificate and an honorarium. Purpose of the Award is to recognize notable achievement in the field of aviation safety, civil or military, "in method, design, invention, study, or other improvement." Dr. McFarland in a brief response, said he was delighted to note that the second recipient of the Award in 1957, had been Harry F. Guggenheim who, as President of the Daniel and Florence Guggenheim Foundation had led in the establishment of the Center in the Harvard School of Public Health in 1962.

Bernard Mortimer of the Farris Institute for Parenthood wrote Bruce that he is "Employing all my physiological knowledge and skills in fertility."

Victor Hall to Hal:

I am still working in a quarter-time job for the Brain Information Service as editor of most of its publications; indulging in brief after-lunch naps; working in our garden for the rest of the afternoon; and reading and exploring music in the evening. In all, a very full and warmly satisfying life, with no major change in sight! Last summer my wife and I hired a car and driver and spent three weeks exploring southern England. We saw three palaces, five cathedrals and twenty-three pubs - a most relaxing, charming and satisfying experience.

Gordon Ring to Hy:

It was so pleasant to hear from you again. After being away for three years in Malaysia, I have had difficulty getting into research again and have settled instead for going to the Coral Gables High School one day a week to teach physiology. The text used is most unsatisfactory. I only wish some young physiologist would write an up-to-date accurate and interesting book for this age group. I should be glad to be more active in physiological matters but don't wish to leave this area. In my spare time, I'm refinishing furniture and hooking rugs. It is interesting trying to do things you have never attempted before. My kindest regards to you and all of the committee.

Arthur Grollman to Hy:

It is always a pleasure to hear from you and the Committee, bringing back as it does nostalgic memories of earlier days. Although chronologically retired, I maintain my former activities as professor of experimental medicine in the department of pathology, teaching (postgraduate) when called upon, directing research, and maintaining a consultant practice in fields of my special interest. I still continue with scientific writing although at a reduced rate. As a firm believer in Freud's concept of work as an integral part of the life process, I plan to continue to follow my present schedule of activities wherever and whenever these are requested.

BORN IN 1902

Ash Graybiel to Bruce:

I am continuing my investigations dealing with normal and abnormal responses in which the vestibular system plays an essential or an important role. I am writing up the results of experiments that have fallen behind a bit for the reason that I have given a lot of time to the preparation of chapters in texts or monographs. I would like to add that I believe it would be worthwhile to have a journal devoted exclusively to brief reports by oldtimers covering a range of topics drawn from personal experience that range from health care to preservation of capabilities for conducting experiments or contributing to our background knowledge.

Sid Robinson to Bruce:

I am still as busy as ever. The only things which stopped with my official retirement in June 1973 are my classroom teaching responsibilities and my monthly paychecks from the University. I miss the classroom teaching, but am glad to get rid of the bluebook grading. The withholding from the paychecks would soon exceed the salary, so that will not be a great loss. As for my work, it seems that I'm not half finished yet. I'm writing papers on data that have been in the notebooks for several years. I'm stimulating several former graduate students writing their theses - three will complete the Ph.D. and two the M.A. requirements this summer. Our lab is still in active operation. Four of my students gave excellent papers at the Federation meeting in April. I shall preside over a symposium on "Man's Adaptation to Hot Environments" and give a paper, "Sweat Secretion During Acclimatization to Heat" on the same symposium at the International Congress in October. I'll also give a paper at the Satellite Symposium in Jerusalem the week before the Congress. Aline and I have decided to remain here among our friends, at least for the next few years. She enjoys her position as "Associate Director of Admissions". Her principal responsibility is the admission of the freshman class each year. She and her credentials analysts, with the aid of the computer, select 6,000 freshmen from a much larger number of applicants each year. She is recognized as the best recruiter of good students in the University. She and I both serve as counselors for students in the honors division.

John Field to Hal:

Your kind letter arrived while I was in Baltimore where I discussed "A cycle of reform in American medical education. 1870-1940," with the seminarians at the Welch Institute of Medical History, Hopkins. Sally and I greatly enjoyed this brief Eastern trip, which came at a time when Baltimore flowers were at their colorful best. I am currently writing a book, which may or may not carry the same title as the seminar. In large measure, it will be an expansion of my 1970 review. Neither Sally nor I wish to move. Our children and grandchildren are Californians and we enjoy their companionship very much.

W. A. Selle to Bruce:

After retiring from UCLA Medical School in 1969, I continued on at Long Beach General Hospital where I had been doing research on bone development and degeneration (osteoporosis). At Long Beach General after completing the research there I was Director of Inservice Training, Chairman of the Utilization Review Committee and Physician for the Hospital Personnel (700). Had to retire from there in 1972. After that I joined an HMO medical group for a year, learned to sew up lacerations and do other medical activities which I hadn't done since residence days. Now am involved in a very busy practice of Industrial Medicine. I live in Corona del Mar and am near the water in this beautiful suburb of Newport Beach. Am well except for a bad case of hay fever. Incidentally, "hay fever" was a research project of mine for eight years in the

1940's. During that period I lectured annually to the American College of Allergy on the subject of the patho-physiology of hay fever and asthma. What we need in 1974 is a good cure for these. Perhaps I should go to Boulder City to avoid some of the allergic excitants which are bothering me now! As to advice to others? I have none. Other than don't let the years throw you! Keep active physically and mentally!

BORN IN 1903

Paul Hoefer to Hal:

All goes well with me, but unfortunately I can no longer do basic research. I am working full-time as Chief of the Neurology Clinic for the United States Veterans Administration. My only recent paper was a chapter on Electroencephalography and Head Injuries, published earlier this year in Brock's recent edition.

Frank Schmitt to Hal:

Frank enclosed Judy Swazey's chapter on his role in the founding of the Neurosciences Research Program which has the first chapter in the book "The Neurosciences - Paths of Discovery" which grew out of his 70th birthday party. He continued: We hope that Mac V. Edds will join the top staff of Neurosciences Research Program and that Fred Worden will take over the responsibility of running the show as Director (Edds would be Executive Director). I remain Chairman of the Board of Trustees of NRP and "Foundation Scientist" with primary responsibility for devising and carrying out NRP's scientific program. How to have your cake and eat it too!

Arnold Lieberman to Bruce:

Even as a senior citizen I keep busy with book reviews, articles, forensic medicine, some patients, etc. Give my regards to Ernst Simonson who (along with Bob Doty) was with me on the FASEB Translation Board. Last November 1973, I was invited to steer a meeting of Russian and American Cardiologists at Ponte Vedra, Florida. (Dr. Lieberman enclosed a few recent papers including an editorial in Minnesota Medicine on Humanism at the Bedside and a story about The Case of the Ageless Abkhazian Aide-de-Camp.)

Orville Walters to Bruce:

I continue to have a lively interest in the field of my first love. About twenty years ago I left general medical practice to take a residency in psychiatry at Menninger School of Psychiatry. From that I went to the University of Illinois to serve as Director of Health Services for ten years. Three additional years as research professor brought me to mandatory retirement and Peoria, where I have just retired again as assistant medical director for psychiatry at Methodist Hospital. I continue a modest amount of teaching as clinical professor of psychiatry in the Peoria School of Medicine, a branch of the University of Illinois College of Medicine. There is a dearth of psychiatric resource in this

community, and I continue an abbreviated private practice. Although I was trained in a strongly psychoanalytic center, I never became a true believer, which must be credited, at least in part, to my rigorous training during the graduate years in physiology. I vividly recall my first physiological society meeting when I heard A. J. Carlson say in the discussion period, "I'm sympathetic with sympathin, but I'm from Missouri!"

Sol Roy Rosenthal to Maurice:

I have a contract to write two books (Charles Thomas & Co.). One is on BCG vaccination in tuberculosis and cancer and the other is on pain. I have written several chapters on the latter already but it will be some time before I get back to it since I want to finish the book on BCG first. I am still looking for a top-notch physiologist who is interested in neurophysiology to corroborate with me in writing the book on pain. I would not be interested in any other position at this time except perhaps on a consultant basis. I do not wish to move to another area. I have no objection to having my request for a physiologist published. There will be no compensation except if there are royalties.

A. B. Taylor to Maurice:

Although officially retired, I am fortunate in that my department has allowed me to make use of equipment and facilities necessary for my research interests. These interests are centered chiefly around the cellular activities of the gastrointestinal tract as revealed by both the scanning and transmission electron microscopes. In addition I am studying the ultrastructural changes associated with cellular aging in several different kinds of cells from animals of various ages. I manage to keep more than busy and could use some extra hands. In reply to some of the other questions: I am free to move to another area if a suitable position should become available. University administrative work under present circumstances is not particularly attractive to me.

Al Behnke to Bruce:

My current retirement efforts, apart from central diving problems, relate to 1) simplified but adequate nutrition at greatly reduced cost in schools, state hospitals, and prisons, and 2) decrease of injury from impact trauma incurred in contact sports. The nutrition endeavor was stimulated by your leadership. At the end of World War II, you were responsible for publication in Science of a notable report from Professor Lehmann's Institut f. Arbeitsphysiologie at Dortmund dealing with the caloric cost of coal mining. This report showed unequivocally how coal production was related to nutrition levels. I was a member of the Secretary of the Army's Special Commission in 1948 which utilized the reliable German data as the basis for the subsequent increase of the normal consumer ration of 1800 to 2540 calories daily. The adoption of the higher nutrition level was an important factor in German industrial recovery. In regard to lessening of impact injuries, notably in football, the problem is implementation of field tests of equipment which utilize energy-absorbing materials acceptable to players. The various

steps required to produce better protective equipment are similar to those you outlined in a World War II lecture to us at the Naval Medical Research Institute on the various steps required to produce acceptable field rations.

Sam Reynolds to Hy:

I am doing no laboratory work, but am writing and lecturing. I have turned out one to three papers yearly, a few of them good, judging from the responses, over the past five years. My base of operations is the Hershey Medical Center.

BORN IN 1904

Ancel Keys to Bruce:

Margaret and I are just back from a three-month stay at our Italian home after I finished a chapter, "Coronary Heart Disease - the Global Picture" for a new book on cardiology, *Cardiologia D'Oggi*. About August first we expect galley proofs from Doubleday of our new book *The Mediterranean Way to Eat Well and Stay Well*, and expect to be back at "Minnelea" by early September. As originally planned, my "seven countries study" (actually eight, including Hungary on which we have not yet reported), is nearing a close but all seven-country data will not be in for a bit and then there is a sizable analytical job to do. The results from 120,000 man-years of experience cannot be evaluated and reported at short order. All the 10-year data from our three cohorts in Hungary will not be available before Spring of 1976. Some of the cohorts in what seems to be a life work are being followed for 15 years. For example, this Fall will bring the 15-year re-examination of the survivors of 1,600 men first enrolled in Finland in 1959. So there is no lack of work to do in connection with the epidemiological studies I started so long ago. But more and more I find competition to this scientific work in the joy of working out-of-doors in the gardens and orchards of our home in Italy. In Minneapolis we have a very pleasant apartment from which we can take off on a day's notice and I maintain a small office at the University of Minnesota.

John H. Lawrence to Bruce:

I am now a Regent of the University of California which takes part of my time, but I continue working as before, seeing patients, and advising students who plan to go on to medical school. I am still doing some writing and have just submitted a chapter on "Acromegaly" to be published in Volume III of C. H. Li's *Hormonal Proteins and Peptides*, a volume which will be concerned with growth hormone. We continue to do research with heavy particles and their uses in treating patients with pituitary disorders, and we hope soon to have available very-high-energy particles which will be of particular value in the treatment of certain types of cancer. I continue to participate in scientific meetings, and during the past year presented a paper on "Indications for and Results of Treatment of Pituitary Tumors by Heavy Particles" at an International Conference on Diagnosis and Treatment of Pituitary Tumors,

held in Bethesda, January 1973; gave the George Von Hevesy Memorial Lecture entitled "Some early and recent experience in nuclear medicine" at the 11th International Meeting of the Society of Nuclear Medicine in Athens, September 1973; presented a paper entitled "Heavy-particle therapy of pituitary disorders" at the Fifth International Congress of Neurological Surgery held in Tokyo, October 1973; and was a member of a three-man Heavy Ion Treatment of Cancer Team which visited the USSR, January 21-30, 1974.

Hayden Nicholson to Bruce:

This is a splendid project that you and the other members of the Committee are engaged in. It is heart-warming for us older physiologists to be reminded that someone is interested in what we are doing. I have been retired for almost two years now and am enjoying it. I spent the last four and a half years before retirement on the staff of the Division of Medical Education of the American Medical Association in Chicago. That accounts for my living in Glen Ellyn. I enjoyed those four and a half years greatly. When I left the University of Miami in 1968 I was 64 years old and would have retired in another year if I had stayed there. The AMA has no rigid policy of retirement for age. When we left Miami we thought we would return there to live after I retired, but we like it here and probably will stay. Glen Ellyn is a pleasant little suburb of Chicago and seems to me to offer most of the advantages and few of the disadvantages of metropolitan living. My wife, Marian, and I were both midwesterners originally, and don't find this climate particularly rigorous. Marian is an avid and accomplished gardener. I am slightly less avid but I enjoy it too. Since my retirement I have visited a few medical schools at the request of my friends at the AMA in connection with the accreditation activities that they carry on in conjunction with the Association of American Medical Colleges. Last Fall, Marian and I had a very pleasant trip to Japan to attend the dedication ceremonies of the school building and hospital of a newly established medical school in Okayama.

Jim Shannon to Bruce:

Things are going well at Rockefeller University and I will continue here for another year. My time is occupied by contemporary problems of science - more of a policy than a substantive nature - and much time is spent in discussions and writings. It seems a pity that this becomes the occupation of the older person and of little concern to the young and vigorous scientists - but this is slowly changing.

Henry Beecher to Maurice:

Since retiring four years ago, I have been writing the history of the Harvard Medical School with the title Medicine at Harvard: A History of Ideas and Their Influence on American Medicine. The manuscript is now complete and the Oxford University Press will publish it.

Alan Burton to Maurice:

Thanks for your letter expressing interest in what I am doing. I've just passed the 70 mark, but am still active in our department of biophysics, from which I retired nearly three years ago as Head. I am on pension from the University but rehired (at the lowest salary of any faculty) to teach. I manage a third-year Science course (Biophysics). I still manage to turn out papers now and then. However, since one eye is gone, I can't do the bench research I wanted to do with the microscope and micromanipulation. So I've turned back to theoretical biology, in which I have dabbled from time to time. I have produced a highly speculative model of how intercellular communication in normal tissue, and lack of it in some cancers, could mediate "contact inhibition" of cell division (I received over 1,400 requests for reprints), but it is, of course, largely ignored by the "cancer experts." I am following up a clue that acid-base relations may be the "key substances" in the theory, by finding a remarkable correlation (negative) of incidence of cancer from the published statistics with altitude of residence (i.e. acclimatization to altitude). Physically, I have some limitations, wouldn't you expect it, with my peripheral circulation! I understand that Ivy had some trouble with his gall bladder, and I expect Bruce Dill some day will suffer from anoxia, and Hy Mayerson from edema. I hate to predict on the same basis what Hal Davis' trouble might eventually be! As to the words of wisdom, I've just sent off one of those "Old Duffers in Physiology" chapters for the Annual Review of Physiology.

Harry Grundfest to Maurice:

I'm still at the laboratory where things are humming, mostly with work on muscle by John Reuben, Phil Brandt and the younger people. It's a friendly and pleasant group as well. We're too comfortable in New York to think of moving.

E. W. McChesney to Maurice:

Since my "retirement" six years ago I have metamorphosed into a sort of toxicologist. In these six years, I have published, according to my count, eight papers, one of them a review of considerable length. There appears to be a good opportunity for me to continue active research and scientific writing for another year or two, at least on a part-time basis. The present is my fourth major position, the others being: 1) Associate Professor, Univ. of North Carolina (1931-37); 2) Associate Professor, Baylor Univ. Coll. Med., (1937-38); 3) Senior Biochemist, Sterling-Winthrop Res. Inst., (1938-68). I greatly enjoyed the recent article in The Physiologist about A. C. Ivy, who played such an important part in my career.

Hugh Montgomery to Maurice:

These last two years, since becoming Emeritus Professor of Medicine at the Medical School of the University of Pennsylvania, I have been fully active practicing internal medicine, with the initial emphasis on peripheral vascular disease. I am now doing no research work, and

no formal teaching, but the conversations with interns, students and other doctors at the Bryn Mawr Hospital is teaching of a sort, at least teaching me. I am the only one well grounded in this subject in this immediate region, and have no trouble being busy. I miss working with my scientific friends and at the same time feel very proud of my new medical and surgical colleagues. I fish for trout several times a year with Isaac Starr and always find him good company and an excellent dry fly fisherman. I wish I had some words of wisdom to pass on to our younger colleagues. Effectiveness and happiness each come in so many different ways that no short word would suffice. Decency and humor seem to be what most of us need.

Richard Richards to Maurice:

First of all, I hope and trust that you are yourself well and keep active. One of my old German Professors used to say: "The easy chair is the enemy of the aging man." I am now Emeritus Professor of Pharmacology and was very happy to establish contact with Stanford University Medical School. At this time, I am part-time active at this excellent institution, holding a position as Consulting Professor in Anesthesia, Medicine and Pharmacology. Actually this means I have limited opportunities to do some experimental research on analgesics, generously supported with a grant of the Anesthesia Department. I do some teaching in Pharmacology and I am the Faculty Consultant at the Stanford Hospital in Clinical Pharmacology (Dept. of Medicine) every third month. Thanks to Dr. Leo Hollister, I am making weekly Clinical Pharmacology rounds at the Palo Alto Veterans Administration Hospital.

Paul Sekelj to Maurice:

I am still quite busy writing papers. Hope to do the same in the coming academic year. I may also do some teaching and research. In the future, hopefully, I want to do more landscape painting, repairing antique furniture and learn about gardening. For the time being I would not like to move to another area. I am quite satisfied to continue my activities at a diminished pace; this helps me to supplement my rapidly shrinking pension.

Paul Bucy to Hal:

I left Chicago in November 1972 when Mrs. Bucy and I moved to Tryon, North Carolina, where we now live. In January 1973 we began to publish a new neurosurgical journal called "Surgical Neurology." I have been responsible for editing this journal. It has progressed very well. It has grown in size both as to the volume of material published and as to the number of subscribers and advertisers. Effective July 1974, it will become the official publication of the Congress of Neurological Surgeons. I am also Chairman of the National Committee for Research in Neurological Disorders. This is the National Committee composed of approximately 50 voluntary health agencies, such as the National Multiple Sclerosis Society, the National Epilepsy Foundation and the professional and scientific organizations concerned with neuro-

logical and communicative disorders. This organization is concerned with supporting research in the neurological field and particularly in strengthening the activities of the National Institute of Neurological Diseases and Stroke of NIH. In connection with this organization I find it necessary to go to Washington frequently to confer with the staff of NINDS and with the Administration, particularly of the Department of HEW, and with the members of Congress concerned with legislation and appropriations in the health field. I have also continued to deliver papers before various scientific organizations, to moderate panels and seminars, etc. The only wisdom which I have to pass on to our younger colleagues is find something to do which interests you before retiring and then do it.

Ray Daggs to Hal:

Both Mary (my wife also retired) and I are having the time of our lives. Do what we want when we want to, no deadlines. After looking over the United States for suitable places to retire, we decided we liked it best right where we are, here in Bethesda. We have a large choice of supermarkets close by, good medical facilities and the climate is varied enough to be interesting and allows for some flower gardening which we both enjoy. Our time is mostly taken up by our hobbies. I built a wood working shop for myself and a pottery shop for Mary in our basement. I enjoy working with wood, especially rare woods when I can get them, making all sorts of small things. I work with Mary and her pottery, making molds, mixing colored glazes from oxides and firing in our small electric kiln. Other hobbies include stamp collecting for me and African violets for Mary. I think there is only one piece of advice I could give to those about to retire - plan for it a few years before that day comes. Even though we are absorbed in our hobbies we are far from disinterested in people. We live right next door to the Federation and we welcome any of you at any time. Our backdoor is accessible from Beaumont property and you are as welcome at our back door as our front door.

A. Van Harreveld to Hal:

I have been able to postpone retirement up till now, but next July this will become inevitable. We are still pretty busy with problems concerning the water and electrolyte distributions in the brain and its various implications. There are still problems which I think are important and which I would like to finish. I am planning to do some writing in the general field of my activities over the last decades. Since our family and friends live mostly in southern California, I prefer to remain in this general area.

Jim Hardy to Hy:

The next time that I am in New Orleans, I am definitely going to come by and have a visit with you. As you know, my son is on the faculty at LSU, and I get to New Orleans at least once or sometimes twice a year. Finally, I have retired from the Directorship of the John B. Pierce Foundation Laboratory, and as you know, I was retired

from Yale last year. I still retain an office and a small laboratory and plan to continue my work in thermal physiology as long as I can. In this connection, I have just completed a study on the effectiveness of acupuncture, in which I find that the sensation of pain is not modified but the autonomic response to the painful stimuli is suppressed. I imagine that this latter result is a more or less non-specific effect akin to "masking." We still have an interesting program under way on the study of temperature regulation and in the meantime I am able to get in a few golf games as well as a bit of fishing. I find that the main influence of retirement is that I no longer feel guilty when I am out of the laboratory.

R. W. Dougherty to Hy:

I have a half-time visiting professorship at North Carolina State University at Raleigh from October 1, 1974 to July 1, 1975. I hope this will be interesting and will help me "taper off." At the present time my wife and I have a small 38-acre "farm" a few miles south of Ames. We are enjoying our Suffolk (sheep) flock and the very nice, quiet scenery of our wooded pastures. I am still interested in the physiology of ruminants and get to observe behavior firsthand. This is a species that should receive thorough studies of their special senses, especially olfaction.

Hy Mayerson to Bruce:

I "retired" as Chairman of the Department of Physiology of the Tulane Medical School in 1965 in keeping with the retirement policy of the school. I could have stayed on for an additional five years as a member of the department but I decided not to for a variety of reasons. Chiefly, I suppose, because several new directions presented themselves and my old ego urged that I try my hand at something different than I had been doing, to prove that I could adapt and learn even at my "advanced" age. Wherefore I decided to stay in New Orleans and take over the administration of Touro Infirmary, a 121 year-old, 530 bed teaching hospital, originally founded as an infirmary for indigent sailors. I had the advantage of having been in and out of the hospital for some 40 years, knew members of the managing Board and had taught about 60 percent of the staff. I ran the operation as Director for about four months, brought in a former student and knowledgeable administrator, and demoted myself to Associate Director, giving up responsibility for the "hotel" and business side of operation and holding on to the professional side until a year and a half ago when I decided to go on a part-time schedule and give up all responsibilities except the professional education program. This involves the usual house staff, continuing education program, library and research programs with ramifications. I have taught the courses in anatomy and physiology to nursing students - we have a good diploma school - several times when there was no one else to do it. Our intern and residency program are affiliated with Tulane - which continues my contacts with the Dean and faculty. We have some good research programs - Grace Goldsmith has her nutritional laboratory in our building we have good programs in orthopedics and ophthalmology, etc. I am involved in all of them vicariously and am stimulated by the eager young

men and glad when I can help them. Several years ago, I was appointed a Trustee of St. Mary's Dominican College, a small but good community school - this has given me involvement in undergraduate problems, and I still serve on the Board of our Cancer Society and stay involved in several other community ventures.

All of this and a small patio garden fill the days, and I am catching up on novels I never had time to read, etc. We get away on short trips, to Mexico in March, Denver in June to see our son, Peter, and grandchildren. Peter is practicing there in psychiatry, and very successful. Otherwise, I am in good health and can still laugh at the end of the day. I shall probably stay on at the hospital for at least another year and then take stock again. I'm having fun - the hospital is better for my being around and the contacts keep me going.

BORN IN 1905

Les Chambers to Bruce:

I am still chairing a department of environmental science in the University of Texas School of Public Health and foresee no immediate change in status. Within the group there is an active component concerned with environmental physiology, limited for the present by a space shortage which is being remedied by the construction of a fully adequate, well-equipped new building. The graduate student group is particularly gratifying. The routine of curriculum development, administration, instruction and paper pushing is interspersed with some writing and occasional efforts at consultation to developing programs outside the United States. I've especially enjoyed brief stints in Latin America; in a few days, two of my associates and I will leave for a similar chore in Saudi Arabia. For the latter objectives, I've learned a bit of Arabic. How much good it will do remains to be seen. My only admonition to those younger is that they should always consider themselves so.

Raymond Root to Bruce:

I recall that I wrote to you a few years ago and told you what I am doing. There has been no change in my activities since then.

Charlie Hassett to Bruce:

I remain Chief of the Experimental Medicine Branch and fill in for Van Sim when he is not here. We have only the Medical Division now, with toxicology, biophysics and veterinary medicine as the other divisions under the Director. After another year I shall have to retire, but I have such a young and active bunch that I could enjoy going on indefinitely. Having been away from the bench for a long time, I suppose I would prefer some kind of an administrative job for the future. We still go to Woods Hole in the summer and have a house there, but retiring there would not offer much action. I would prefer to stay around Baltimore. Some travel is definitely in mind, as we made many friends in Holland while we lived there and we enjoy going back, as well as looking at other countries.

Sam Leonard to Bruce:

Since I first replied to your questions regarding what has been happening after retirement, I can only state that things have been about the same. I go into my office most every day, keep up with the literature, confer with students and help them with experimental techniques as the occasion demands. By not having to be tied down to an active research program, I can enjoy traveling, visit my children who are widely scattered and to take off for a summer-long camping trip in the Rocky Mts. for trout fishing and sight seeing. Research today is expensive, requires grants which, in view of limited funds, should be made available to the younger men. My wife is a botanist (Ph. D., Wisconsin) and my interests as a zoologist also makes for living the good life out of doors a great pleasure. Biology on the whole is thriving at Cornell and will be further increased by the addition of the Boyce-Thompson Institute which is moving from the Bronx to a space adjoining our campus. The news is not very exciting but one likes to receive letters and your committee should receive replies as payment for your good works.

Chandler Brooks to Hal:

A few months ago I was much pleased to be invited, "because I had been involved" to participate in the writing of a history recounting the development of Neuroendocrinology to be edited by S.M. McCann, J. Meites and B. Donovan of the University of Texas. I am also involved in the writing of a little book on the Autonomic Nervous System. Two additional projects will help occupy my time in the future. First, I am trying to write what might be called a treatise on Integrative Physiology. The second relates to an interest in History. I have been asking why medicine and science develop in the Western (European) culture but not elsewhere despite very remarkable beginnings. This final project takes me a bit beyond physiology. The symposium monograph on Walter B. Cannon's contributions to Physiology is about finished. My "sabbatical" was spent in Aberdeen as a Visiting Scholar, Department of Physiology, Marischal College. In the catalog I was listed as a Research Assistant. I assisted by not interfering. On occasion I substituted for Laurence Malcolm, Regius Professor and Chairman of the Department, when he was away attending committee meetings. Finally they gave me a class of 12 students to teach. That was an extremely pleasant experience reminiscent of the days before students hated the faculty and most of the faculty hated administration and about everything else in their heritage. These students even came to the train to see me off bringing gift, and that warm glow an older person feels when young men and women indicate respect and affection. I was very happy in Aberdeen even though it was a winter of difficulty for the Scots. I am home again doing two long experiments a week on cardiac reflexes and autonomic system reactions. I seem almost to be back where I was before my three to five years of immersion in administration at the height of the "academic war" - I was a reserve called up to stabilize the front if possible. Now I am engaged, with associates of course, in studies of cardiac pacemakers and conduction, the autonomic system and neuroendocrine function. As I look at what I hope to do it seems a bit absurd but on the

other hand the University has been extremely good to me and I can retire into the activities of my youth. I might as well try that again rather than a career as a chicken grower, amateur farmer or primitive craftsman. I would like to grow grapes and tomatoes but I may find a way even though I will continue to live in Brooklyn, at least for a few more years.

Herb Chasis to Hal:

My teaching duties as Professor of Medicine have been reduced and working time increased in the Homer W. Smith Laboratory for the Study of Hypertensive and Renal Diseases at New York University School of Medicine. In addition, I have taken a part time assignment as Deputy Director of the Metropolitan Regional Medical Program (for hypertension).

Rex Ingram to Hal:

I retired in January 1973 and find I am still busy. My summers have been spent with a series of review and up-to-dateness lectures in anatomical neurology for residents in neurology, neurosurgery and psychiatry. I also have much gardening and yardwork to do, as I always have. Much time is spent in reading and keeping up with the literature and new ideas. I also act as consultant in research on occasion, and one of my former students and I have a couple of papers in press at present. The last two winters - November through March - have been spent in Tucson where Emory Warner has given me a comfortable corner in his laboratory, which is close to a rather good library, in the department of pathology, where I have some old friends and they have given me the courtesy title of visiting professor.

Rees Wiersma to Hal:

I am greatly in favor of the goals of your committee, as it provides a good way to prevent waste of talent by the application of quite arbitrary measures. This has been my last full year as professor at this Institute. The next two years I will be on half time. My present research is mostly on the memory mechanism shown by crustacean optomotor fibers. I find this quite fascinating as one encounters several strange features. I have written a few review articles in the general field of neuronal behavior. Maybe memory is so interesting to me at present because I start to notice some decrease of accuracy in my own.

Morton Oppenheimer to Maurice:

Having been retired from the Chairmanship of physiology at Temple on July 1, 1970 because of age (65 years), I remained there in a teaching capacity until July 1, 1972. At that time I moved to Atlanta to become Chief of the Education Research and Training Branch at the National Medical Audiovisual Center. That is my present situation. We are charged with aiding Medical Education by means of audiovisual support. In September and October, 1972 I had a series of heart attacks which placed me in the intensive care unit at Emory University for a while. However, I am now fully recovered and am back at work full

time. It is good to remain in contact with teaching and research. To do so is always a source of stimulation and reward.

Burr Steinbach to Maurice:

In response to your note - I may be superannuated but I am not retired. So far I have retired as: 1) Chairman, Zoology at Chicago; 2) Director, Marine Biological Laboratory; 3) Dean, Woods Hole Oceanographic Institution; 4) Scientific Director, Harbor Branch and am working towards the 5th at the Oceanic Foundation.

Doug Lee to Bruce:

Everybody warned me that one gets busier when one retires. That, I find, was an understatement. The idea was to spend half-time for twelve months helping Dr. Selikoff and his staff at Mt. Sinai bring out a text on asbestos, and to spend the other half-time in good - and remunerative - works. That is the part that threatens to get away with me. Probably the biggest demand on time so far has been working with the Pan American Health Organization on the proposal to set up a Center on Human Ecology and Health in Mexico. It would try to help member governments in Latin America and the Caribbean meet environmental pressures by providing information, discussing problems with them, training personnel, holding seminars, etc. If funding eventuates, and that is always a big "if", the Center should be quite important for the Region. For my old associates at the National Institute of Environmental Health Sciences I have been conducting and am now preparing the proceedings for two Symposia. The first was on the Biological Effects of Ingested Asbestos, and the second on Biometeorological Effects of Environmental Controls. The proceedings from the first are about to go to press. The second looked into possible undesired biometeorological repercussions of well intentioned environmental controls. For example, tall stacks simply spread the emissions around more; and air conditioners are fine for those that have them, but succeed in making things that much hotter for those who don't.

David Tyler wrote Bruce from the University of South Florida at Tampa:

I am still at this corner doing my best trying to corrupt medicine by injecting the students with, I hope, a knowledge of what drugs do and don't do. In between times I am at work on a text of pharmacology which I am darn sorry I started because it is work and it is going slowly.

George Clark to Hy:

I still have a laboratory at the VA Hospital and am engaged in several research projects. In addition I do a small amount of teaching at the Medical University here. The planning I did long before retirement has paid off and I am quite pleased with my present situation.

BORN IN 1906

Jan Nyboer to Bruce:

After a slow start, Electrical Impedance Plethysmography is finding a role among the non-invasive methods in physiology and clinical medicine. Counterpoise bioballistics is having a more difficult role. Wayne University created an appointment for me as associate in research physiology although phase 2 wiped out my previous status. I have labs at Rehabilitation Institute and in Physiology, however funds are scarce as hen's teeth. We managed to update our instrumentation as a bioelectrical Impedance Analyzer with $R, X, Z, \Delta R, \Delta X, \Delta Z$, and $\Delta R/\text{sec}, \Delta X/\text{sec}, \Delta Z/\text{sec}$ capability. The calculated phase angles in dialyzed and dying tissues should be better defined by the renewed approach to membrane physiology.

Lyle Beck to Bruce:

My term as Chairman of Pharmacology on the Bloomington Campus ended three years ago. However, I am still employed as Professor and spend most of my time in research, supported in modest degree by an NIH grant for "Perifusion Studies on Rat Pituitary Tissues." My scheduled date of retirement is June 1976. I have kept so busy with this work that I have not given serious consideration to the fact that this kind of activity cannot continue forever. Nor do Dorinda and I have any plans to move somewhere else in 1976. Dorinda and I returned a few days ago from Atlanta where I attended the 1974 Endocrinology Society meeting. On the way back we visited briefly with Howard and Teresa Rostorfer in Sevierville, Tennessee on their mountaintop retirement home. I would say that for both health appears better than it has for years. The "medical school" at Terre Haute (Indiana State Univ.) is one of several branches of Indiana University School of Medicine located outside Indianapolis. At present not more than one year of medical school education is offered anywhere other than in Bloomington. The branch at Fort Wayne offers the fourth year; all other branches offer only the first year. Dr. Steve Beering was in charge of setting up the branches; he is now Dean of the School of Medicine and Glenn Irwin is Chancellor of I. U. P. U. I. (Indiana Univ. - Purdue Univ. at Indianapolis).

Bob Phillips to Bruce:

I am a research professor at the University of Washington in Seattle and will be retired by the University when I am seventy, two years from now. However, I am doing my research work in Taipei, the Republic of China, and get back to the States only about once a year. My travels may be curtailed because my right hip, which was fractured in a fall three years ago, has not healed properly and I now have an ischemic necrosis of the head of the femur. Consequently, I do not believe I'll be leaving Taiwan for some time, at least as long as I am able to carry on my research work here. In 1965 I retired from the Navy after ten years as Commanding Officer of NAMRU II here in Taipei, and moved to Dacca, now Bangladesh, as Director of the Pakistan SEATO Cholera Research Laboratory. After six years there, I moved back to Taipei

and took up my appointment with the University of Washington. These three years have been some of the most exciting years for me in my research career. In 1963 on the occasion of the Symposium honoring Dr. Donald D. Van Slyke, in Brookhaven, I presented a paper on our cholera studies and at that time suggested that the principles of the renal clearance concept developed by Van in 1921, be applied to the study of gastrointestinal tract in man. We have developed a method for doing so. The subject drinks an isotonic salt solution at the rate of 40 grams per minute and within one hour of drinking, a free-flowing diarrhea occurs; continuing drinking for a second hour flushes out all food and fecal particles and all bacteria which are not attached to the mucosal cells in the gut; in the third hour, we have a clear, colorless, odorless stool eluate. The subject then stops drinking for 30 minutes to empty his stomach. He is then given a protein load by drinking a protein meal made into a slurry with the isotonic salt solution, equivalent to his daily protein requirements, which is about 4 grams of protein nitrogen. We then allow one or two hours for protein digestion and absorption of the products of protein digestion. The subject then drinks the electrolyte solution at 40 grams per minute. The first glassful containing 10 milligrams of the blue dye T-1824 which Magnus Gregerson used so effectively in World War II in his studies of shock. This acts as a marker. We collect then, all of the stool eluate until 30 minutes after all of the marker has passed out of the gut. The stool collections from the time of ingesting the protein until the intestine has been cleared of protein are then analyzed, and by doing total nitrogens, NPN, and amino nitrogen, one can determine how much of the protein has been digested and how much of the protein products have been absorbed by the gut mucosa. Thus, for the first time, one is able to distinguish between the digestion and absorption of ingested protein by man. I believe you will be happy with this "breakthrough" as Claude Forkner and others have commented.

Hubert Catchpole to Bruce:

I am still active professionally as a physiologist although situated (for 27 years) in a department of pathology which saw fit to employ my talents. I work in the area of connective tissue, ionic distribution and ionic binding and use some of my spare time to combat the false doctrines of active transport! I hope that you continue as well as The Physiologist would indicate.

Allan Grafflin to Hal:

How nice of you to write. The family and I are all well. I am still full time in the solo practice of ophthalmology and I wish you all the best.

Robert Morison to Hal:

I am still at Cornell, but since giving up my administrative post as Director of the Division of Biological Sciences four years ago, I have been simply a professor in an ill-defined field called Science and Science. I continue to write two or three papers a year in the equally ill-defined field of Science Policy and Biomedical Ethics. In the latter area, I have

found a good deal of stimulation as a Fellow of the Institute of Society, Ethics and the Life Sciences in Hastings-on-Hudson. If everything goes according to schedule, I will retire from Cornell on July 1, 1975, and will also disappear from various boards and committees at approximately the same time. My present plans are to retire to New Hampshire and become what used to be called a gentleman of leisure, but I hope to continue to read and write as long as my health holds out. I am certainly not interested in an administrative position, nor do I feel particularly free to move to another area. I still enjoy learning new things, though, and during the past year I have had a good time serving on the Advisory Committee of the National Cooperative Gallstone Study. This is an extremely elaborate enterprise involving ten clinical centers, and I don't know how many subsidiary units, all of which are coordinated by a Steering Committee and the Advisory Board. We are already up to Document #85 and the actual experimental work has not yet begun. My training in the physiology laboratory at Harvard under Dr. Walter Cannon really didn't prepare me for this kind of thing.

George Thorn to Bruce:

To summarize my activities briefly, my major commitment continues to be Director of Research for the Howard Hughes Medical Institute. In addition, I have been a major editor of the "Principles of Internal Medicine, one of the classical medical textbooks, and beginning this year will be Chief Editor for the Eighth Edition. My third major interest is Massachusetts Institute of Technology where I am a member of the Corporation and of the Executive Committee of the Corporation and actively involved in our Harvard-M.I.T. Program in Health Sciences and Technology. In my odd times I devote weekends to my arboretum in Manchester-By-The-Sea.

Henry Schroeder to Maurice:

I am continuing to work, from a wheelchair, and am favored in working half time in the tropics (the right way) and half in Vermont. Books? By some fluke, I have three coming out this year, one by Plenum, one by the Univ. of Indiana Press and one by Devin-Adair. There are much more data collected to be analyzed and evaluated than we have time for, although we are slowing down by closing our animal quarters in a year or so. The metal-free laboratory, like any good tool, has served its purpose and has been replaced by other and better tools elsewhere.

Donald Pace to Maurice:

I am still professor in the Department of Physiology/Pharmacology and Director of Cellular Research in the School of Pharmacy at the University of the Pacific. In our laboratories we are continuing our observations on human lung cells in vitro. We are particularly interested in the morphological changes in cells during aging. We have also been studying alterations that occur in chromosomes during aging and transformation. This year I have been appointed Visiting Professor and Consultant in the Physiology Department of the Stanford University School of Medicine. At this time, I am teaching a course in Human Physiology to nurses and physiotherapists. I am still teaching under-graduate courses, guiding a number of graduate students, and carrying on research.

Austin Henschel to Bruce:

I have now officially retired as Chief of the Physiology and Ergonomics Branch, National Institute for Occupational Safety and Health, but I have not stopped working. I have continued with NIOSH as a Science Advisor two days a week and during the Spring semester teach a graduate course in Industrial Ergonomics at the Institute of Environmental Health (Kettering Laboratory), University of Cincinnati Medical School. As Science Advisor for NIOSH I have responsibility for our Special Foreign Currency Program which involves considerable travel and direct contact with many foreign scientists. Retirement has changed somewhat my activities, especially routine administrative chores but if one is interested and curious there is not enough time to accomplish half of what one plans. I try to reserve a few hours each week to play with painting. It is a most relaxing and self rewarding hobby that can completely engulf one. I paint mainly still life and landscapes in oils or acrylics. I would like to achieve a rather carefree style, but the many years of training in precise science always seems to show through. My health is still excellent and I keep physically about as active as ever. I am not interested in nor would have the time to take on any new commitments or responsibilities or change the ones I now have. Our plans are to remain in Cincinnati and continue our present arrangements for the next few years at least. The Occupational Health and Safety Administration of DOL will, we think, shortly publish a Work Practices Standard for Hot Environments. I had a major responsibility in preparing the basic information for the document and the recommendations. I am now getting the backup data together for a similar work practice recommendation for cold weather operations.

Herbert Jasper to Hal:

Although three years now beyond the official retirement age of 65, I have been unsuccessful in managing to retire. I am Director of a Medical Research Council Group for Research in the Neurosciences at the Université de Montréal. There are six full members of this group and ten associates so that there is much of interest going on all the time. We have specialized laboratories in neuroanatomy, electron microscopy combined with radioautography as well as a very active neurochemistry laboratory where I am collaborating in studies of amino acids. We have also a special section on catecholamines and fluorescent histology and neurochemistry, an active biomedical engineering group and of course considerable activity in neurophysiology and microiontophoresis. In order to find time for experimental work myself I am still engaged in the laboratory, I have resigned from activities with IBRO, UNESCO and WHO. I am still serving on the Council of the American Society for Neuroscience and I have been serving on a few ad hoc committees for NIH though I have retired from regular Study Section work. I have withdrawn from most clinical activities with the exception of some work at the Montreal Neurological Institute with Dr. Bertrand studying the activity of single cells in the human thalamus during stereotaxic surgery. You can see that my efforts at retirement have not been very successful. The great problem it seems to me in retirement is to decide when and this, of course, is an individual decision depending on physical energy

and mental productivity. It may also depend on the local situation as to whether you can continue to be useful in a group even though your productivity has necessarily been greatly reduced insofar as intense laboratory activity is concerned. Enjoyable relaxation in the form of physical exercise has been most rewarding for me with a cabin in the country, sailing, gardening, building and continuation in other sports is essential, at least for me, in order to keep going. I enjoy limited travel particularly to visit old colleagues in various corners of the world but not as a tourist. I suppose the two things that keep me intellectually alive for the most part are exciting new developments and on the other hand, visits with old friends with whom we can share reminiscences. I have always been interested in trying to bring basic research in neurophysiology and neurochemistry to bear upon clinical problems. This is still a difficult task as basic research becomes more and more specialized and highly technical so that communications with clinicians may be more and more difficult. However, I am rather encouraged at the trend during recent years for physiologists to be more and more interested in the importance of their work for behavior and not hesitant about projecting the behavior of single cells in the brain, for example to their significance for perception and behavior in the intact animal or human organism. As we are finding more and more minute details about nerve and synaptic function, the problem becomes more and more complex. The most important, it seems to me, for the present is to find young Leonardos who are capable of putting all the pieces together into a working system in spite of preoccupation with minute detail.

Nathan Shock to Hy:

It was good to hear from you and to learn about your current activities. I read with great interest the letters published in The Physiologist. I'm afraid I don't have much to contribute as yet since I am still doing business at the old stand as Chief of the Gerontology Research Center. Please continue to keep in touch.

Georges Ungar to Hy:

Your letter came just at the right time when I am beginning to make plans for the future. My appointment here will probably come to an end in a year or two but, as long as my bodily and mental health hold out, I should like to continue my research and teaching activities. I would, therefore, welcome suggestions from any area of the country, in fact, from any part of the world. My laboratory has been working at full capacity in spite of the current funding difficulties, especially support for graduate students. I have been busy writing reviews and book chapters and am just finishing a book for a French publisher on the "Biological Basis of Memory." I am planning to write something that could be used as a textbook for teaching life sciences to non-science students. I feel that a great deal of the present hostility to science is due to the way in which it is taught to those who are going to be the "general public."

Milton Mendlowitz to Hy:

It is very kind of you to inquire about my activities especially now since I am about to become Emeritus Professor of Medicine next July. It is always a shock to realize that others know how old you are no matter how perpetually young your self image happens to be. I am enclosing a curriculum vitae to give you a rough idea of my activities over the years which always involved the application of physiological and biochemical methods to the solution of clinical problems. I look forward to less administrative duties and more time for thinking, research and even patients. I am presently in the process of trying to stimulate interest in the establishment of an American journal for hypertensive and renal diseases and am completing a book for lay people entitled "Pressure" which will be the fourth monograph to my credit. I intend to remain active and pursue all my interests both medical and beyond. I do not know whether in the end like all generals I shall fade away but I do know that I will keep my boots on.

BORN IN 1907

Bruno Balke to Bruce:

I was deeply moved by your presence at my "retirement party" here in Aspen last Winter - nearly spoiled by unfriendly weather conditions. Although the University of Wisconsin does not require professors to retire before 70, I resigned at 66 for two reasons. First, it is better to retire voluntarily before the younger associates and students become tired of the "papa." I thought I had accomplished what I had set out to do when I joined the faculty in 1964, namely to establish a sound curriculum for graduate students in Human Biodynamics and Exercise Physiology within the School of Physical Education. Now the ball has momentum and keeps rolling. Secondly, I wanted again to change the course of my life by trying to establish a Cardiac Reconditioning Unit in the moderate altitude climate of Aspen, Colorado. As you well know, for many years I have used my medical, sports and sportsmedical, and physiological education as a basis for experimental investigations in the area of human stress tolerance. More lately I was concentrating on research and service concerned with the role of exercise in the prevention and rehabilitation of coronary heart disease. This was a long struggle against "school medicine" but now the topic is at least widely discussed and practiced although not fully accepted. Now I am making this issue even more controversial by combining the stimuli of exercise and moderate hypoxia. They together might provide a potentiating effect on the development of collateral blood flow. My initial experiences with postmyocardial infarct and angina patients have been very encouraging. Thus I decided to put my little savings into a place I thought may have a potential for developing a Cardiac Reconditioning Center of the type well succeeding in Europe and farther East. Thus, instead of retiring quietly and free of pressures, I took on a new challenge which would probably break me if I cannot succeed in attracting a sufficient number of "customers." I teamed up with the Aspen Health Center and with the local physicians in offering the basic cardiac stress test and individually tailored exercise programs. We serve as one of the six or seven Community Service Units for Cardiac

Rehabilitation sponsored by the Colorado Heart Association. I expect patients to stay with me for two to four weeks so that they can be introduced to adequate activity habits. This is to be an enjoyable active vacation experience. Not only do we conduct supervised exercises precisely prescribed as to intensity and duration in a gymnasium setting but also use the seasonal attraction of the mountain environment in our training program. There are many beautiful trails to explore, usually leading to a lake or to an easily accessible summit. There are rivers and lakes we enjoy by boat, paddling or rowing, or watching the trout bite. During my first year of retirement, I have also been in Brazil for eight weeks, lecturing and conducting seminars in Exercise Physiology, Training, and Preventive Medicine. The sponsors of this trip, the Ministry of Education and the Brazilian Sportsmedical Society, had me visiting eight major cities. It was hard work, talking nearly every day for four to six hours. However, if the Portuguese language spoken in Brazil would not be so difficult to learn and understand, I would not hesitate to go back to this country of a very promising future. Also, last April I taught a short-term course in Physiology to graduate students at the Biochemistry Department of the University of Tennessee in Oak Ridge. Thus, adding a few more seminars here in the Colorado area and still reviewing papers whether in and for Applied Physiology, or Sports Medicine, or Aerospace Medicine, I really never have a dull moment. Of course, I also have to find some time either for skiing or hiking or boating or bike riding since I have to use these activities in the cardiac training program I am offering. But you will never see me again running down the White Mountain as in 1962. My hip joints have become very uncooperative. Hopefully, after another arthroplastic surgery on the second hip, I will be able to do all these things with less pain. Since I am not supposed to sit very long in the same position, I am not very successful in doing what I should do, namely, writing. This is a brief resume of my present life. It still continues to be a life of searching, service to people, and teaching. There must be many Senior and Junior Physiologists who need a good vacation and the practical experience of exercise and altitude physiology. I would be glad to welcome them here and provide them with such experiences.

Robert Brown to Bruce:

I retired in 1970 and about October that year we moved into a house which we had bought in Tarpon Springs. The back of the house is about 40 feet from a fairly large lake which has lots of various kinds of fish in it. They are not so interesting, but there are numerous alligators, the largest about 10 or 11 feet long, which cruise right off our seawall. About three mornings a week the large one goes up behind the butcher shop to wait for the butcher to throw out spoiled meat. There are many varieties of birds, among others great blue herons, American egrets, gallinules and very occasionally, ibis. There is a pair of ospreys which fish the lake fairly regularly. I have such severe emphysema that I have not been out of the house in a number of months. I do a lot of reading and watch the wildlife on the lake, so I manage to keep busy and happy.

Joseph Still to Bruce:

My wife and I moved to Pasadena last year in order to be closer to my practice. Though old enough to retire, I've learned enough about the effects of boredom and idleness on oldsters to wish to have none of that. My principal interests now are in bringing the ideas in the two attached papers to the attention of those who can use them. Titles: "The Levels of Life and Semantic Confusion" and "Adult Preventive Medicine: The Fourth Phase in the Evolution of Medicine." During the past ten years practicing personal preventive medicine, I've seen the aging process actually reversed in a sufficiently large number of patients so that I feel confident in saying that medical knowledge is already sufficient to extend the average life span five to ten years. The problem now is to get enough physicians to use this knowledge so that most people over forty will be able to live a normal life span which I believe is at least eighty to ninety years.

Harold McCutcheon to Bruce:

Some decades ago when no one else was looking, I acquired a little island just up the Newport Bay from Pivers Island where the Duke Marine Lab and the U. S. Fisheries Labs are located. It is a textbook estuarine place so rich the porpoises work it where the high tide barely submerges them. Its richness does not include grant type resources, however, so I work it with my head barely above water. Early this month Duke dedicated a new research lab and a new library building. In these circumstances I continue research as a hobby, including at present, yawns in frogs (tadpoles), tidal movements of fishes, and mobility of clams.

Carl Bunde to Hal:

Your continuing interest in "old physiologists" is a wonderful idea. I am curious to know if each of us finds his own personal and unique niche or if there is a pattern. Although I read often about preparing for retirement, I was too busy to do more than read about it. As a result, what happened just seemed to be coincident and totally without design. Since my health is excellent and I was in a position of compulsory retirement at age 65, I knew I would keep active at something. About two or three months before the event, my employer, Merrell-National Laboratories, asked if I would work part time as a consultant. This delayed any planning for the moment. After the first year, I had gradually changed my work from line to staff and then for the first time thought seriously about the future. I liked the consultant position and decided to take it more seriously. I had stationery cards printed and made it known that I preferred more than one client. Soon I was approached by another local research laboratory, Hill Top Research, Inc., so added another client in an on-going capacity. I have also done spot jobs for two others, and that is about all I want for the present.

Fred Mettler replied briefly to Hal and closed with:

Loquacity is one of the commonest (though not necessarily the most valuable) indications that children and aged persons are not dead.

Titus Evans to Maurice:

I will reach mandatory retirement age on December 9, 1975 and this will take effect on July 1, 1976. I have not made any commitments. My health is good and I am still doing research, teaching and administration. I have been around so long that I find my chief involvements in scientific societies to be along historical lines. I don't do this by preference but I don't like to see historical matters neglected. I would prefer to do active research on radiation effects on tumor cells as long as I am able. However, I am willing to do whatever seems most worthwhile and needed. Naturally, my roots are here in Iowa City; it is tempting to seek a warm climate like my native state (Texas), but I will surely consider any place where I can fill a need.

Bob Gaunt to Maurice:

My semi-retirement goes nicely, largely because it is only "semi." I spend something more than half time as a consultant to CIBA-GEIGY, one federal agency and one academic group. I am not ready to quit completely yet but am trying to get myself in that frame of mind. It is a relief not to have to make tough administrative decisions. I have fun working with my younger successors who treat me with great kindness but have the good judgment not to pay much attention to what I say. My health is good but there has been an ominous deterioration in my golf game, with some painful and pride-shattering consequences. Biologica Abstracts has apparently bloomed handsomely since its threadbare days when you and I worked together on its Board. You had much to do with pulling it through its dark time. I will take credit for having recommended Phyllis Parkins to the staff.

Hans Selye to Maurice:

I am now doing research and am compiling review articles and monographs on stress (which is what I've been doing ever since I graduated from Medical School) in an attempt to bring some unity into this ever-expanding field. As far as I can see, there is no immediate threat to my continued activity here, but I would like a position where I could devote all my time to research and writing, without the administrative responsibilities of being the Director of this large institution. Unfortunately, I cannot correlate my literary work on stress without my enormous library and I think it would be quite a financial burden for any university to take it over with me attached as ballast. On the positive side, I can report that I have recently been awarded the Star Medal of the Canadian Medical Association which is its highest distinction and has been given only six times in the history of the Society. Among others, I am proud to share this honor with Sir Frederick Banting, J.B. Collip, Wilder Penfield, etc. Also, last week I received the Killam Award of the Canada Council, which is its highest prize for my work on stress, particularly as it applies to psychological and social problems.

Karl Smith to Maurice:

I am about three years away from retirement. I am interested in moving my computer laboratory to a situation with academic freedom in research and teaching.

Chuck Gell to Bruce:

I am still functioning as the Scientific Director of the Naval Submarine Medical Research Laboratory. Since our laboratory has a broad multi-disciplinary organization, I find myself continually involved in the planning, management, and technical support of various phases of behavioral sciences, biomedical sciences and military applications as they relate to the submarine and diving environment. I was intrigued to read a letter to you from Dr. T.E. Boyd in a recent issue. I am sure that Dr. Boyd has not the slightest recollection of me, but I retain a clear mental picture of him when I was one of his students at Loyola University Medical School in 1932 and 1933. Specifically, you asked me what goes on at the Naval Submarine Medical Research Lab. During the past year, our efforts have been directed to the conduct of a Longitudinal Health Study in submariners and divers. We have also become lead laboratory and film repository in the study of dysbaric osteonecrosis; a newly recognized pathological entity in divers, but of course long recognized and debated in Caisson's disease. We are very active in the physiological and biochemical aspects of the submarine environment. Work also proceeds in the auditory, visual and human factors aspects of submarine and diving activities. Last year we were supposed to have had a 2000 ft. chamber installed, but the money for this device was withheld. Consequently, our diving activities are now concentrated in the shallow and intermediate zones between sea level and 300 feet. We have two human subject chambers for this purpose. We started a series of saturation diving studies and have run two manned 30-day exposure dives, during which compressed air was used rather than helium and oxygen. These studies are demonstrating our belief that compressed air is safe for the diver indefinitely at least at the depth of 100 feet, and possibly at greater depths. We have supported the efforts of other laboratories, such as the Navy Blood Research Laboratory in Chelsea, to determine what changes occur in blood platelets in diving exposure; the use of oxygen and hydrogen in dives with the Lecler Company in New Orleans, and a series of deep dives with excursions to greater depths with the Ocean Systems Corporation in Tarrytown, N. Y.

Herbert Silvette recalled aspects of the military environment Bruce had forgotten:

I remember you well from the old Army Chemical Center days, when Marrazzi was also there; and I was - and still am - convinced that you were the only physiologist (or even medical man) I had ever come across who was dressed in admirable taste. (In my teaching days at the University of Virginia, my students granted me a runner-up position; but, as my wife insists ad nauseum, I have "let myself go" the past 20 years or so). So I keep you in mind as the sole reminder of sartorial perfection, and the memory is a pleasure, and occurs oftener than you have any reason to think.

Efrén Del Pozo wrote Hal from Mexico D. F. :

I keep a position as Secretary General of an Association of Latin American Universities which includes more than 100 institutions of higher education in all of Latin America. In the past I was President of the Mexican National Academy of Medicine, the Mexican Society of Physiological Sciences and the Mexican Society of History and Physiology of Medicine. I also had the position as Vice-President of the National University of Mexico during eight years. I still try to keep my connections with the scientific world and hold the position as Head of the Physiology Laboratory in the Instituto de Investigaciones Biomédicas at the National University of Mexico. My personal work is now mainly related to the pharmacology of Mexican medicinal plants. Maybe you have been seeing my papers in that field. One recent review on Aztec Pharmacology was published in the Annual Review of Pharmacology. I have published a book in Rome on an Aztec Herbal of 1552 known under the title of "Libellus de Medicinalibus Indorum Herbis." I have also been directing the editing of a series of books on Francisco Hernandez who explored Mexico in 1570-1577 under the auspices of the King of Spain, Philip II. It has been wonderful to hear from you and I remember all the time the privilege of working together at Harvard.

Howard Burchell to Hy:

It is a coincidence that your letter arrived just at the time when I was talking to young colleagues who had just returned from the Albany Fall meeting. I really should have gone to that meeting, as, in retrospect, I could have escaped the minor commitments that I had made here. I am continuing as Professor of Medicine at the University of Minnesota, but next year, will transfer my teaching activities to one of the large community hospitals where a university unit has been established. I continue to keep my nose in other people's research, and I hope that occasionally I make constructive critical comment. Another sabbatical quarter at the Cardiovascular Institute under the direction of Dr. Durrer in Amsterdam appears to be a real possibility next year. My period as editor of "Circulation" was very demanding but very rewarding in the contacts that I made with the reviewers on the editorial board and with many authors. It is a temptation to make myself available again for part-time editing.

Kelly Wakim to Hy:

In your letter your most prominent question was "What are you up to these days?" I am up to my ears and quite often above that level deeply involved in the superb Indiana state-wide Continuing Medical Education Program of Indiana University Medical Center. This is organized, guided, and provided by the excellent medical leaders of Indiana University Medical Center in Indianapolis. The Medical Center is the hub and the various satellites all over the state work together in a coordinated plan with the medical center. The Chancellor, the Dean and the Executive Associate and Assistant Deans at the Indianapolis Medical Center all have worked together and developed an excellent

program for keeping the practicing physicians, nurses and paramedical personnel updated to maintain high standards of health care and to relieve medical manpower shortages in the various community hospitals throughout the state. In their attempts to remedy the medical manpower shortage these medical leaders have also organized an Undergraduate Medical Education Program which enabled them to admit 305 freshmen medics from among 2,000 of the highest quality applicants. They divided the 305 freshmen and assigned them to the eight medical centers scattered all over the state. Each center is fully responsible for their own Freshman Medical Education Program, but are constantly under close supervision and in full cooperation with the mother medical center at Indianapolis. All the first year medics are given a well-organized closely supervised good taste of clinical medicine from the first day of their entry into medical school. We have 16 first-year medics here at Indiana State University. They spend every Saturday morning in one of the hospitals, each with one practicing physician as his preceptor. After completing the first year, they all go to the Indianapolis Medical Center for their Sophomore and Junior years. The local medical centers work in close association with the community hospitals and all the satellite medical centers cooperate with and are responsible to the Indianapolis Indiana University Medical Center. Sit tight on your chair and don't cringe, as I reveal to you that in addition to the Continuing Medical Education Program, I have been granted my unrestricted license to practice medicine in Indiana. I have already bought a place and I am in the throes of establishing an office with several examining rooms so that I can pitch in and aid my colleagues in relieving the medical manpower shortage. Medical practice is not a new fiber to my weave; during my 30 years at Mayo, I have always kept in touch with Mayo clinical practice. In fact, the majority of my 370 publications were primarily oriented at answering puzzling clinical questions initiated by patient problems. My friends at Mayo are all well aware of my clinical orientation and regular attendance at all clinical lectures, symposia and clinical-pathological conferences for which we always had superb programs.

A third project in which I am deeply involved is that of alcohol abuse and alcoholism, which after careful study, I dared call "Our America's Number One Blight." With the Terre Haute Medical Education Foundation I am in charge of a federal grant of \$100,000 a year for a three-year alcohol project. This money is earmarked for medical education on alcoholism, alcohol abuse and the management of alcoholics. I think, all of you are as well and as painfully aware of the fact as I am, that today in our country we have over 10 million alcoholics, only 3 to 5 per cent of whom are skidrow - the rest are leaders, business executives, doctors, senators, ministers, priests and even Nobel prize winners. Some experts on the subject say 6 to 10 percent of the doctors, lawyers, priests and ministers have serious alcohol problems. It pains me to tell you that today alcohol imbibition, even to the wabbling stage from loss-of-coordination, is a status symbol. You and I are not up to par socially if we don't drink. I for one am more interested in my liver, heart, pancreas, senses and safe driving than in my social status and its symbols. If you want me to, I can sing by just taking water on the rocks; I do not need that darn pickler to make me do that. I do not care to make my

liver fatty and my heart flabby to belong to the society that bestows on me its status symbol. I am well satisfied and contented without that symbol. I would rather read and walk straight than imbibe alcohol and wobble exhibiting my status! It is high time that you and I and all of us call to the attention of our AAMC and AMA the fact that not one of our 112 medical schools has in the curriculum a course on alcoholism. A course on physiology, biochemistry and pharmacology and on the pathological effects of alcohol, including several hours on diagnosis, management and rehabilitation of alcoholics is a must and should become part and parcel of the major courses in our updated medical curriculum. Look carefully into the current curriculum of our 112 medical schools and you will hardly find one hour on alcohol. I have frequently seen our high brass, state and federal officials, on committees on Alcohol Abuse and Alcoholism emphasize the term responsible drinker; while sipping their strong cocktails they were busy formulating plans for a program on the treatment of alcoholics and the prevention of alcoholism. This situation stirred me up deeply enough that when I returned home from the meetings I organized a series of six one-hour video taped color TV cassettes on the various aspects of alcohol and its effects, including its chemistry, physiology, pharmacology and pathology. I also discussed diagnosis and treatment of alcoholics including prevention, general management, specific therapy and rehabilitation. Anybody willing to spend six full hours listening to and studying these cassettes will learn enough about alcohol to realize the immensity of its cost and the gravity of its ravaging effects on the body. Alcoholism is a diagnosable, treatable and curable disease. Any physician who realizes his responsibility towards his fellow man who has developed a pathetic dependency on alcohol, would want to learn how to take care of the many alcoholics in our country today. I probably have said more than I should. I told the truth, painful as it may be. I do hope you can use the facts I expressed after you realize that many others will confirm what I have said about alcohol, even though not all of them will agree with me. I do not mind being labeled "naive or simple." Naive or simple I am not. I have seen many homes broken up and important lives destroyed. When some of my friends insist on wanting to know why I do not take a cocktail, I answer, "I suppose I am not civilized enough to realize its social lubricant effects." I know exactly how so many feel about the necessity for using alcohol as a social lubricant and as soother of tense nerves; but I always wondered how many do realize that it is a protoplasmic poison; when properly used, it is for denaturing proteins and destroying enzymes to prevent decay and preserve tissues intended for preparation of slides for pathological studies (alcohol fixation). These facts leave very thin grounds for rationalizing to justify "responsible drinking", social lubrication and by-passing the mental and physical deterioration induced by the frequent use of alcohol in our highly geared society today whose focus is on status by sugar coating the bitter facts.

BORN IN 1908

Arnoldus Goudsmit to Bruce:

I am still active professionally. My present assignment is that of Research Associate in Cancer Chemotherapy at the VA Hospital here

in Minneapolis. I am also carried as an Assistant Professor of Surgery in the Department of Surgery, School of Medicine, University of Minnesota. The work which I perform is a mixture of clinical management and investigative cancer chemotherapy. The latter activity involves participation in many cooperative protocols sponsored by the VA, by other groups and a few pursued locally. I consider my position here as one with very adequate clinical, academic and administrative challenges and have all intentions to continue here so long as my superiors are satisfied with my performance. After many years in an essentially clinical practice, I am very happy to have re-established myself in an academic environment. I experience it as an invigorating, inspiring and rejuvenating venture.

Otto Muller to Bruce:

I am still actively teaching in this Department, taking care of some odds and ends besides the metabolism and respiration parts of our course in physiology. I also occasionally give a course in Physical Chemical Mechanisms in Biology. My research activities are somewhat more removed from physiology, centering almost exclusively on polarography and some of its biological applications. I have slowed down considerably in my laboratory work and enjoy more the outdoor work which is unlimited in some 200 acres of wild territory that I have acquired. I am actually looking forward to retirement in another year or so, when I can devote full time to "puttering around" and enjoying nature in the raw. I have found that I still can do some physical work in spite of a heart attack, as long as I have a chair handy in which I can rest as soon as I get winded.

Rulon Rawson to Bruce:

I am Director of Extramural Programs of the University of Texas System Cancer Center and am working closely with representatives of all of The University of Texas Health Science Centers in developing cooperative programs of mutual interest as they relate to cancer. I am also Associate Director for Scientific Affairs and Chairman of the Working Cadre of the National Large Bowel Cancer Project. Although I no longer get into the laboratory, my association with the National Large Bowel Cancer Project provides me with an opportunity and an obligation to continue my studies of research activities as they relate to this important cancer. I am attempting to write a biographical sketch entitled "My Best Teachers." I have also agreed to write a history of thyroid research for some of my old friends who are interested in the physiology of the thyroid and the treatment of thyroid diseases.

Bob Dow to Hal:

I am still busy as a clinical neurologist at Good Samaritan Hospital and Medical Center here in Portland. We have seven full-time scientists and three postdoctoral fellows presently in the lab which is a remarkable concentration of talent in a private hospital such as Good Samaritan. Our residency program in neurology, which was independent until 1968, is now merged with the University of Oregon Medical

School for the mutual benefit of both programs. We are processing over 40 applications for our summer fellowship program in neurophysiology which has been one of the features of the laboratory of neurophysiology since it was established 15 years ago. Our work of over 10 years on the controlling influence of the cerebellum on experimental epilepsy has become of more general interest since its clinical application has been initiated by Irving Cooper, and we hope to pursue this subject again. The next year I will be heavily involved in a feasibility study for a comprehensive program for epilepsy in Oregon at Good Samaritan Hospital and Medical Center, under a recently negotiated contract with NINDS. I am taking longer weekends at a second home Willetta and I have in Central Oregon where we enjoy the mountains and more sunshine than we can count on in Portland and, as the years go by, these will undoubtedly be further lengthened. Fortunately, being primarily in private practice I can continue all my activities which I enjoy without a deadline of retirement hanging over me and, as long as I can do the things I like and live in a part of the country I love, I'll continue to do so.

Al Gilman to Hal:

I am one of those who have "retired" by taking on added responsibilities. I still have a part-time professorship at the Albert Einstein College of Medicine but will become emeritus after the next academic year. My present center of activities is at Yale University, department of pharmacology, where I have the title of lecturer. This affords me office space, a stimulating environment, an opportunity to rejoin four former members of my Einstein department who have accepted posts at Yale, and to return to the scene of my first academic post. In addition, I have an appointment as visiting professor of pharmacology at the University of Virginia School of Medicine where many members of the department are close friends. I have also continued with my consultant activities for the pharmaceutical industry which I find stimulating and educational. Finally, Lou Goodman and I are busily engaged in editing a new edition of our text, *The Pharmacological Basis of Therapeutics*. As you can readily surmise from the above, my time is completely occupied. The one former activity that I do not miss is the responsibility of a chairmanship. In this respect, I have retired.

Franz Hausberger to Hal:

I am still professor of anatomy and division head of gross anatomy at Jefferson Medical College of Thomas Jefferson University in Philadelphia. At retirement age, I received an additional appointment for two years and am due to retire by July 1, 1975. I am still very much involved in research. During the past three years I published four papers in conjunction with graduate students, I presented a paper at the 1974 Federation meetings and have one paper in press. I am continuing my research on adipose tissue, supported by a grant from the National Institutes of Health. I would be very much interested in a position that would enable me to continue my scientific activities. You know that I am not a physiologist though my work is physiological, often carried out with biochemical methods. I am free to move, I have no dependents, and my wife who has worked with me for 23 years and I feel free to resettle.

Paul McLain to Hal:

I have followed in a general way the APS program for senior physiologists, and have admired both the objectives and the implementation of this service. I am still happily engaged in teaching pharmacology to medical students, and while I miss physiology, which was my major field of endeavor for so many years, I cannot truly say that I am any less a physiologist because of the shift in emphasis. For the last four years, my time has been devoted almost entirely to educational interests, particularly the development and operation of a Self Instruction Center in the department of pharmacology here. This has been a rewarding experience, and I am grateful for the opportunities it has afforded. I have no fixed plans for the future. If my present good health continues, I shall certainly not want to be idle after formal retirement. I shall therefore appreciate information about possible opportunities for an aging, (but not old, mind you) and experienced teacher.

Aaron Bechtel to Maurice:

It seems odd for me to be the recipient of one of your letters. I do not feel at all patriarchal despite my age. Perhaps this is due partly to the fact that I entered the field at the age of forty, when most men who choose careers early have already established themselves. Last year, at age 65, I was asked by John Spitzer to go with him when he assumed the chairmanship of the department of physiology at LSU Medical School on New Orleans. I had been supervising his research laboratory at Hahnemann for several years, and agreed to go to New Orleans in the same capacity. One condition, however, was that I be permitted to take a day off in the middle of the week. (Perhaps I really had been "feeling my age" somewhat in the last few years!) The arrangement seems to be working reasonably well for the lab, and is very salutary for me. The luxury of a "day off" in the middle of the week makes me feel semi-retired and I do not "run down" even in the busiest experimental periods. Twelve years ago I initiated at Hahnemann a study-discussion course in what I called "Philosophy of Science for medical students and graduate students in the basic medical sciences." My papers on "Semantic Problems in Physiology" (published in the General Semantics Bulletin Nos. 26 and 27, 1960, pp. 88-92) and on "The Problems of Communication" (published in "Libraries, Readers and Book Selection" by Jean Spealman Kujoth, Scarecrow Press, Inc, Metuchen, N.J., pp. 201-225) indicate some of the areas in which I believe students in science (as well as in the non-scientific humanities) should be encouraged to engage in thoughtful discussion under the guidance of a mature moderator. Relationships between words and things, and language and thought, and the limitations imposed upon our scientific thinking by the language we grow up with, are too little considered in the education and the training of students. B.L. Whorf's hypothesis ("We dissect nature along lines laid down by our native language. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds - and this means largely by the linguistic systems of our minds. We cut nature up, organize it into concepts, and ascribe

significances as we do, largely because we are parties to an agreement to organize it in this way - an agreement that holds throughout our speech community and is codified in the patterns of our language") (Science and Linguistics" pp. 207-219 of "Language, Thought and Reality" by Benjamin Lee Whorf, the Technology Press of M.I.T., 1956) - is too little known among students and practitioners of experimental science.

This disquisition on a favorite topic is by way of introduction to the biographical note that at LSU the only formal teaching assignment I have accepted is to offer my study-discussion course in "Philosophy of Science." With the help of the Fund for Medical Education I was able to prepare an anthology of readings which in my judgment were better suited for students of the basic medical sciences than any available text in the subject. I have used this anthology in course several times. I note with interest the activities at the University of Texas Medical Branch in Galveston, where a "Division of the Medical Humanities" is concerned with developing a "Philosophy of Medicine." Their recent "trans-disciplinary symposium on the interface between philosophy and medicine" was the first in what promises to be an annual series, with generous support from the National Endowment for the Humanities. The focus of this effort seems to be the practicing physician and his problems in recognizing and defining disease, in solving problems of medical ethics from the prenatal period (abortion?) to old age (euthanasia?), in trying to shift emphasis from the treatment of disease to the cultivation of health, etc. These objectives are somewhat more extensive than my own are in presenting philosophy of science to medical students and graduate students, but perhaps in some way related. I have no words of wisdom to pass on to younger colleagues, unless they are embodied in the interest in the philosophical foundations of science which for me grew out of problems I encountered in my first fifteen years of teaching medical students, and in discussing scientific method with my associates during the same period.

Walter Booker to Maurice:

On January 1, 1973, I relinquished the chairmanship of pharmacology after twenty years but maintained my professorship. I have reallocated my time from administration to research, writing, committee work (on and off campus) and consultantships. I am really enjoying my new life. I plan to retire from full-time professorship June 30, 1975, although the new chairman, Dr. William West, whom I brought here in 1956, has asked me to come back on a 3/4 time basis after retirement. My research work involves studies on new substances thought to be antihypertensive in their major properties. I work with my graduate students in both acute and chronic studies. Another of my graduate students is working with experimental myocardial infarction, tying LAD arteries in dogs and assessing the cardiac performance in treated and untreated animals, using methylprednisolone, ouabain and nitroglycerin as treatment agents. I have another student working on angiotensin-renin measurements in hypertensive patients. And I have a student who is working on production and prevention of secretion of prostaglandins of the "E" series. So, you see, just keeping up with these four students is enough. I find it rejuvenating to do experiments with them, particularly when I feel I won't get in the way! I plan to attend the World Congress

on Cardiology in Buenos Aires (Sept. 1-7) and spend the remainder of September in Africa, lecturing and giving seminars. I shall then go to India prior to the International Congress of Physiological Sciences and remain through one or two post-congress seminars. I am sure I shall run into you "at some point of time." After January 1975 I shall be free to give some lectures and seminars, if you have any places in mind.

Charles D. Kochakian to Maurice:

I have no plans to retire in the near future. I am still spending a long day in the laboratory with a group of young, active people and recently accepted an invitation to edit a volume on "Anabolic Hormones" and also to prepare a chapter for another series of volumes. In addition, I have extended my studies on metabolic effects of androgens to marine animals. I spent last August at Cape Cod working on these studies and plan to spend July of this year doing the same.

Robert Pitts to Maurice:

I am finishing up my active academic and research career here at Cornell. I retire on June 30, 1974, and move to Gainesville, Florida where I have a research professorship in physiology and renal medicine at the College of Medicine of the University of Florida. I hope to continue in research there. Retirement into a more or less full-time research position will pose few transitional problems for I have kept my research interests and activities. However, setting up a new research laboratory in an unfamiliar setting may cause me some problems which I trust will not be insurmountable, especially in view of my long-standing acquaintanceship with Arthur Otis and Bob Cade.

Leon Chesley to Hy:

I have read avidly the news, notes, and letters from the old-timers and now realize, reluctantly, that I am in that category. Don Pace was my laboratory partner for seven years, in college and graduate school. When you published his letter last year I resolved to see him again and last March I detoured from a meeting in Los Angeles and spent a weekend with him in Stockton. Retirement from the State University of New York is not mandatory until age 70 and I mean to stay on until then, and even longer if the computer loses track of me. I have spent the last 40 years in research on gestational physiology and hypertensive disorders in pregnancy but the ever increasing restrictions on research involving human beings are discouraging. As a result, I find myself writing more and more chapters for books and working on a monograph on hypertensive disorders in pregnancy. I had never thought that I would be reduced to that, because I'd rather spend my time in the laboratory.

BORN IN 1909

Otto Edholm to Bruce:

Like many others, I've appreciated the information given in The Physiologist about older members of the Society and the clear lesson

that one should never retire, but keep on working at all costs. I formally retire from MRC in September of this year, but I've been fortunate in that I've been appointed visiting professor in the Faculty of Environmental Studies at University College, London. The Medical Research Council has generously provided me with a personal grant and I am planning work, using Fox's Controlled Hyperthermia Technique on the effects of raised body temperature on the CNS in man. I've just had the exciting experience of spending three months in the Antarctic, visiting the British Bases maintained there, trying to determine what future researches might be carried out at these bases. With the combination of prolonged isolation in a relatively harsh environment, with particular patterns of light and darkness there are, I think, many exciting possibilities, especially in the combination of physiology and psychology. Among other activities, I am now one of the Editors of a new journal, the "Annals of Human Biology" where we plan to have papers dealing with population physiology. I am getting more involved in international aspects of environmental studies and I am currently Chairman of the IUPS Commission on Environmental Physiology.

Francisco Grande to Bruce:

I am in excellent health, and my activity is in every respect very much the same as it was 40 years ago. I realize that this may be an over-optimistic impression, but it is exactly the way I feel. There have been many changes in the Laboratory of Physiological Hygiene. As you know, Ancel Keys is retired, but he commutes between Italy and Minnesota and he is here about six months of the year. Joe Anderson, our biochemist, is also retired, but he, Ancel and I continue working with the unpublished data of our dietary experiments in hopes of getting them into print before it is too late. Henry Taylor is very busy and still a few years away from retirement. He is doing much work for the MRFIT (Multiple Risk Factor Intervention Trial) program, which presently accounts for a large share of the laboratory's activity. It seems that he, Dr. Henry Blackburn, our new director, and the new members of our staff, are determined to continue and expand the work of the Laboratory for many years to come. Besides my work at the Laboratory of Physiological Hygiene, I continue doing work on the hormonal control of lipid metabolism. In addition to my position in the Laboratory I have been for the last 16 years director of the Research Laboratory of Mount Sinai Hospital here in Minneapolis. I became very interested in the possible role of glucagon in lipid metabolism after observing that this hormone causes a remarkable decrease of the blood lipids in hyperlipemic subjects. Because glucagon seems to be more important in birds than in mammals, I have spent the last few years studying its effects on FFA mobilization in vivo and in vitro using mainly geese and ducks. As a former student of August Krogh, I am enjoying immensely this excursion into comparative physiology. Presently I am working on the effect of age on the response of the avian adipose tissue to the lipolytic effect of glucagon. We have found that, in vitro, the adipose tissue of young geese (4-6 weeks) shows a much greater lipolytic response per unit weight of tissue than that of the older animal (1 year or more). This difference seems to be related to the different size of the adipose cells which are smaller in the young goose. It appears

that the lipolytic response, per cell, is largely independent of age. The response in vivo, however, is exactly the opposite. The elevation of plasma FFA produced by the intravenous injection of a given dose of glucagon is much greater in the old than in the young goose. As to my plans for the future I have decided to retire from Minnesota by the end of this year. I have accepted an invitation to organize a Nutrition Research Laboratory and a chair of Nutrition at the University of Zaragoza (Spain), supported by a private Spanish research foundation. This is the University where I was chairman of the department of physiology and biochemistry before coming to Minnesota 21 years ago. Of course I am sad about leaving Minnesota where I have been exceedingly happy and where I have very deep roots. On the other hand, it seems an excellent opportunity to keep busy for the coming years, and I look forward to the challenge of organizing a new laboratory and to continue doing research and teaching in the area of nutrition. This will be the first chair of nutrition in a Spanish University. I am sure that my work in Zaragoza will not mean the end of my contacts with American Physiology.

John Hall to Bruce:

The Aerospace Medical Research Laboratory as it is now called is much changed in its research mission and organization. No oxygen, clothing or nutritional research is conducted. Four research divisions: Toxic Harzards; Environmental Medicine; Biodynamics and Bionics and Human Engineering now exist. Since June 1972 when I retired from the Aerospace Medical Research Laboratory I have been chiefly occupied with travel, my hobbies of photography and book-collecting, and some minor yard and garden work around our house. Visits to our children and grandchildren are a pleasant pastime, and just recently we returned from a nice vacation at Myrtle Beach, South Carolina and a fascinating visit to Carl Sandburg's home at Flat Rock, North Carolina. I would of course prefer to continue some scientific activity (full or part time) as a research assistant or perhaps in an administrative position related to physiology or biology. However, opportunities in the Dayton area are very limited. If a suitable opportunity in research, administration or scientific editorial work should occur, I might consider moving to another area. Both my wife and I are well and since we have spare rooms, we encourage and invite all our friends and colleagues to visit us whenever they come to Dayton.

Joe Holmes to Bruce:

I am still at the University of Colorado Medical Center on the full-time faculty. I have officially reached 65 but can stay on a one-year basis for three additional years, and am planning to go ahead at least during the next academic year. About two years ago I resigned as head of the nephrology division here at the school and decided to devote all of my time to diagnostic ultrasound, which I have been working with since 1960. I believe you are aware of the fact that the unit here was probably responsible for many of the early developments in diagnostic ultrasound and for some years was the only one active in developing this technique in the United States. I have been appointed a professor of radiology in addition to my other titles. Our ultrasound lab does approximately 300

routine diagnostic examinations per month and is expanding its activities steadily. In addition to the practical diagnostic applications, there are many research areas where added knowledge of ultrasound promises to provide information regarding specific character of a tumor in vivo, changes in bone density related to such things as renal disease, healing of fractures, etc., and possibly to affect solute transfer. Certainly it does it across a dialysis membrane, and may do it in the body. All of this is exciting, though progress often seems slow. In addition, we have initiated the first journal in the field of ultrasound, the "Journal of Clinical Ultrasound" and I am the Chief Editor. Its first issue was March 1973, and we now have a rapidly expanding subscription list. Recently the American College of Radiology officially recognized diagnostic ultrasound and will start asking questions on the subject in their specialty board examinations in the near future. This means then that all radiology residents must have acquired training in ultrasound. Our big problem in that field right now is that of expanding training activities so that there are adequate personnel, physicians, technicians and others who can operate ultrasonic laboratories in the various hospitals around the country that are installing such equipment.

Roy Swank to Bruce:

I retired from my administrative duties at the Medical School on July 1st. I am continuing with my research both at the patient and the experimental level. I have been fortunate to invent and develop the microemboli filter, known as the Swank filter, which uses the principle of absorption of platelet-leukocyte aggregates to Dacron or other fine "wool" fibers. This removes these microemboli from transfusion blood and from the extracorporeal system during heart surgery. Since we introduced this concept and the product there have been a number of competing products, none of which measures up to the efficiency of our Dacron wool filter.

Jane McCarrell to Bruce:

I retired in 1971 as Chairman of the Department and Professor of Biology after 25 years at Hood College. Since then I have remained in Frederick having a wonderful time in a number of non-biological areas. I do some gardening, rug hooking, polishing gem stones and enjoy friends and a vacation cottage on Cape Cod.

Fred Crescitelli to Hal:

My health is excellent and my spirits are high, both of which permit me to continue all my activities as usual. I am still at UCLA as professor of cell biology and I am teaching general physiology, an elementary course in human biology and a course in vision. My research on visual pigments is prospering and presently I am examining the curious photopigments of the gecko retina. These pigments have a number of unique properties which are especially relevant to the understanding of the behavior of these visual proteins toward heat and light. A large amount of this information is still unpublished but in the next two years I hope to report this in various forms. I am open to invitations to Uni-

versities and to meetings where I shall be happy to lecture on these matters providing such invitations are not excessive and are from genuinely interested groups. I am very busy as an Editor of "Vision Research" a journal which seems to be prospering. Springer Verlag has asked me to edit a new volume in their series on "Sensory Physiology." This new volume will consider the subject of "The Vertebrate Eye." I have secured the services of a number of leaders in this field and I am hopeful that a useful volume will result. After retirement I hope to continue in the field of vision research and am encouraged by the thought that some institutions will be willing to provide facilities for me to carry on. Regarding words of wisdom to pass on to younger colleagues, all I can say to them is this: Be excited by what you are doing, keep your mind active and do not be unduly discouraged by the evanescent day-to-day events which appear to loom so large at the time of their occurrence.

F. C. MacIntosh to Hal:

May I congratulate you and your fellow committeemen on the fine job you have been doing? I enjoyed reading your section of The Physiologist even before I got within range of your sights. One gets the impression that there is some factor in the air of a physiological laboratory that retards the onset of cerebral atherosclerosis.

Manny Mendelson to Hal:

I retired some five years ago, and live alone on ten acres of weeds and brush. House, garden and field chores are each more than I can keep up with. I would gladly consider engaging in any scientific study or participating in purely technical laboratory work, even on a voluntary basis. An administrative position would be of less interest since it would probably not arouse my curiosity; the results of managerial performances are apt to grind out slowly.

Don Scott to Hal:

Study of the transducer action of the sensory ending in teeth has proved to be a most productive direction of study. You once gave me some excellent advice on the interpretation of the potentials that we had evoked during periods of noxious stimulation. Growing out of this has been an interest in the greater oral area and Yngve Zotterman has asked me to help him form a commission on Oral Physiology at the time of the Delhi Congress. The Council has approved the idea and we are now slowly bringing together the specific fields of interest and the outstanding investigators in each to form the nucleus of common interest with the idea that opportunities for meeting programs relating the various phases of work might be planned. I have found, for instance, a very close relation to the pulpal microcirculation and the excitability of the sensory ending.

M. C. Shelesnyak to Hal:

I'm loaded with fascinating and demanding work as Director of the Interdisciplinary Communications Program of the Smithsonian Institution and as the Project Director on an AID supported International Program for Population Analysis.

Bill Clark to Maurice:

I've been working in several areas: 1) GABA and γ -hydroxybutyric acid - mechanisms of action in vivo; 2) epinine as a possible alternate pathosy to epinephrine in the mammalian brain; 3) antagonism of amphetamine in vivo by amantadine and a few other stimulants - biochemically, pharmacologically and toxicologically; 4) discovered a novel, potential antiparkinsonian agent, a benzyimidazoline - very potent in some models; 5) discovered a new and novel inhibitor of histidine decarboxylase inhibitor (enzyme which makes histamine out of histadine) and found it lowered brain histamine and made some behavioral correlates of this, etc. Published 14 papers, 1972 to date and 10 abstracts. This brings me up to 200 papers and 93 abstracts so far. I am working on the 2nd edition of my book, "Principles of Psychopharmacology" target date around June 1976. The 1st edition, 1970 was well received, went into a second printing in December 1973 and a Spanish translation will be released soon by La Prensa Mexicano.

Arthur DeGraff to Maurice:

I am still teaching on the faculty at New York University School of Medicine as Professor of Therapeutics. My interests are largely in clinical pharmacology related to drugs used in the treatment of diseases of the heart. I am continuing as Chairman of the Drugs and Formulary Committee at Bellevue Hospital, am also on the Board of Trustees of the United States Pharmacopeia, and am a member of the Editorial Boards of the American Heart Journal and of Clinical Pharmacology and Therapeutics. I have written the section on cardiovascular drugs for Walter Modell's new 1974 edition of his book Drugs of Choice. As you can see, I am still very active and hope to remain so for many years to come.

Dan Moore to Hy:

Hope I can continue another 20 years!

Richard Bing to Hy:

I am honored to be included in the illustrious group of Senior Members of Physiology. I am well acquainted with the feature publications and find them of great interest. At present, I am still professor of medicine at the University of Southern California, Director of Intramural Medicine and Experimental Cardiology at the Huntington Hospital and associated with the California Institute of Technology as a visiting associate in biomedical engineering. I have a very well equipped laboratory at the Huntington Institute of Applied Medical Research here

in Pasadena, and have continued my work on effects of alcohol on the heart, mechanisms of cholesterol transfer in the arterial wall, scanning using coincidence counting, and coronary microcirculation. This is all great fun and I hope I will be able to continue this as long as I can at this location. I was very proud to receive the 1974 Research Achievement Award from the American Heart Association.

Otto Gauer to Hy:

Your letter of August 18 came as a wonderful surprise. I am sure you do not realize that you were an active witness of a very important event in my scientific life. At the Fall meeting in 1951 of our Society in Salt Lake City you were the chairman of the session, where I presented for the first time results of our experiments (jointly done with J. P. Henry) on the possible role of intrathoracic receptors in the reflex control of body fluids. At this occasion you allowed 20 (!) minutes for discussion. This was a great and very encouraging experience. Meanwhile many different groups have contributed evidence in support of the now 23 year-old story - and my laboratory is still busy with it. Throughout the years I have maintained contact with many friends and colleagues in the USA. This winter I was Visiting Professor at the Department of Physiology and Biophysics, University of Lexington, Kentucky, where a former student from my time at Duke, Fred Zechman is chairman. At this occasion I had the great pleasure to meet our senior colleague, the indestructible Dr. Adolph. When you receive this letter, I am only a stone's throw away from New Orleans. NASA has invited me to participate in a three day's Symposium on the medical results of the Skylab venture.

T. N. Tahmisian to Hy:

Retirement for me began on the first day of July 1974, which is compulsory here at Argonne National Laboratory at age 65. Our Acting Division Director, Dr. J. F. Tomson, has appointed me a consultant (with remuneration for two days work per month), for which I am grateful but I am seeking full-time work. My position is electron microscopy consultant at the Division of Biological and Medical Research. This appointment allows me to continue some of the unfinished work and also to write. I am interested in a full-time position, could move within 30 days and should like to administer an electron microscope center or initiate one. I have had 25 years of experience in establishing an excellent center of seven electron microscopes and a scanning electron microscope here. I also could teach electron microscopy which I have done in the past some twenty years. At present I am working on the induction and differentiation of mouse mammary tumor virus as well as on the effect of irradiation on the abnormal development of mouse leukemia virus. I should like to collaborate with others in this field, or work on induction and differentiation of organelles in a cell during the transformation of cells to tissues.