

STUDY PROGRAM IN BIOPHYSICAL SCIENCE

TWENTY JULY - SIXTEEN AUGUST 1958 BOULDER COLORADO

REVISED LIST OF PARTICIPANTS

1 July 1958

Abelson, P. H.
Alberty, R. A.
Altshuler, B.
Astbury, W. T.
Augenstine, L. G.
Baldwin, R. L.
Baruch, J. J.
Beams, J. W.
Becker, E. D.
Bennett, H. S.
Berliner, R. W.
Bernhard, S. A.
Blois, M. S., Jr.
Bloom, W.
Bolt, R. H.
Brill, A. S.
Bullock, T. H.
Callen, H. B.
Calvin, M.
Carlson, F. D.
Carroll, W. R.
Chance, B.
Condon, E. U.
Connelly, C. M.
Consolazio, W. V.
Davidson, N. R.
Davies, D. R.
Doty, P.
Edds, M. V., Jr.
Edelsack, E. A.
Eden, M.
Elias, P.
Engström, A. V.
Fernández-Morán, H. V.
Ferry, J. D.
Fluke, D. J.
Friedman, F. L.
Frishkopf, L. S.
Fuhr, I.
von Gierke, H. E.
Glaser, D. A.
Glimcher, M. J.

Goldman, D. E.
Goldstein, M. H., Jr.
Gray, I.
Gross, P. R.
Hardy, J. D.
Hart, R. G.
Hartline, H. K.
Hearon, J. Z.
Henkin, R. I.
Hill, T.
Hodge, A. J.
Hogness, D. S.
Hornig, D. F.
Hutner, S. H.
Inoué, S.
Kaplan, H. S.
Kaplan, N. O.
Kasha, M.
Katz, B.
Kauzmann, W.
Kegeles, G.
Kendrew, J. C.
Kirkwood, J. G.
Klein, E.
Kornberg, A.
Kraut, J.
Lehninger, A. L.
Lennox, E. S.
Levinthal, C.
Liddel, U.
Lindsley, D. B.
Lorand, L.
MacNichol, E. F., Jr.
Meister, A.
Meselson, M. S.
Morales, M. F.
Morrison, P.
Mullins, L. J.
Neurath, H.
Oncley, J. L.
Orgel, L. E.
Pattee, H. H., Jr.

Platt, J. R.
Podolsky, R.
Pollard, E. C.
Puck, T. T.
Putnam, F. W.
Ribi, E.
Rice, S. A.
Rich, A.
Roberts, R. B.
Rosenberg, M. D.
Rosenblith, W. A.
Schmitt, F. O.
Schmitt, O. H.
Shannon, C. E.
Shulman, S.
Singer, S. J.
Sinsheimer, R. L.
Sizer, I. W.
Sjöstrand, F. S.
Smith, H. W.
Sober, H. A.
Stetten, DeW., Jr.
Stetten, M. R.
Stockmayer, W. H.
Sutherland, G. B. B. M.
Svensson, S. H.
Szilard, L.
Taylor, E. W.
Thompson, T. E.
Tinoco, I., Jr.
Tobias, C. A.
Townes, C. H.
Townsend, J.
Uttley, A. M.
Vallee, B. L.
Wauugh, D. F.
Weiss, P.
Williams, R. C.
Wood, T. H.
Young, A. C.
Zimm, B. H.
Zirkle, R. E.

This list is subject to revision.

BBC Study Section, 77 Massachusetts Avenue, Cambridge 39, Massachusetts.

G U I D E B O O K
f o r p a r t i c i p a n t s

S T U D Y P R O G R A M I N
B I O P H Y S I C A L S C I E N C E

Boulder, Colorado 20 July - 16 August

1 9 5 8

Friday — 8 August 1958

LECTURES

- 3L51. Quantitative Studies on Mammalian Cells *In Vitro*. T. T. Puck.
3L52. Interactions between Cells. P. Weiss.

Monday — 11 August 1958

LECTURES

- 4L10. Continuity. Staff.
4L11. Nerve Structure: The Nerve Cell, Fibre, and Endings. F. O. Schmitt.
4L12. The Nature of the Nerve Impulse. B. Katz.
4L13. Recovery Processes and Metabolism of Nerve. C. M. Connelly.

Tuesday — 12 August 1958

LECTURES

- 4L21. Sensory Performance of Organisms. W. A. Rosenblith.
4L22. Biological Transducers and Coding. O. H. Schmitt.
4L23. Initiation of Nerve Impulses in Receptor and Central Neurons.
T. H. Bullock.

WORKSHOPS

- 4W2. Nerve Structure and Function. C. M. Connelly, M. V. Edds, Jr., H.
Fernández-Morán, B. Katz.

Banquet.

EVENING ADDRESS

Wednesday — 13 August 1958

LECTURES

- 4L31. Receptor Fields and Neural Interactions. H. K. Hartline.
4L32. Synaptic Mechanisms. B. Katz.
4L33. Electrical Activity of Higher Neural Centers in Response to Sensory
Signals. W. A. Rosenblith.

WORKSHOPS

- 4W3. Sensory Reception and Signal Processing. T. H. Bullock, H. K.
Hartline, W. A. Rosenblith, O. H. Schmitt.

Thursday — 14 August 1958

LECTURES

- 4L41. Chemical Specificity in Biological Systems. W. Kauzmann.
4L42. Homeostatic Feedback Mechanisms. D. F. Waugh.
4L43. Hormone Regulation. DeW. Stetten, Jr.

WORKSHOPS

- 4W4. Homeostasis. R. W. Berliner, H. W. Smith, DeW. Stetten, Jr., A. C.
Young.

EVENING ADDRESS

Friday — 15 August 1958

SYMPOSIA — to be announced.

CLOSING SESSION. Staff.

Farewell Dinner.

Abelson, Philip H. (27 April 1913, Tacoma, Washington) Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton Street, Washington 8, D. C. Nuclear physics; radioactive tracers; fission products of uranium; characteristic x-rays emitted by radioactive substances; co-discovery of Neptunium; separation of uranium isotopes. B.S., State College, Washington, 1933; M.S., State College, Washington, 1935; Ph.D. (nuclear physics), California, 1939. Distinguished Civilian Service, 1945. Director of Geophysical Laboratory, Carnegie Institution of Washington. Wife — Neva; Children — Ellen 11.

Alberty, Robert A. (21 June 1921, Winfield, Kansas) University of Wisconsin, Department of Chemistry, Madison 6, Wisconsin. Kinetics, especially enzymatic reactions; nuclear magnetic resonance; electrophoresis. *Physical Chemistry*, with Daniels, Wiley, 1955; *Experimental Physical Chemistry*, with Daniels, Matthews, Williams, and Bender, McGraw-Hill, 1956. B.S., Nebraska, 1943; M.S., Nebraska, 1944; Ph.D. (physical chemistry), Wisconsin, 1947. Eli Lilly Award in Biochemistry, 1956. Professor of Chemistry, University of Wisconsin. Wife — Lillian; Children — Nancy 12, Steve 11, Cathy 6.

Altshuler, Bernard (22 June 1919, Newark, New Jersey) Institute of Industrial Medicine, New York University Medical Center, 550 First Avenue, New York 16, N. Y. Mathematics; pulmonary ventilation, B.S., Lehigh University, 1940; Ph.D. (physics), N. Y. U., 1953. Associate Professor of Industrial Medicine, New York University. Wife — Lillian; Children — Bruce Altshuler 9, Nathaniel Gurin 10.

Astbury, W. T. (25 February 1898, Longton, Stoke-on-Trent, England) University of Leeds, Department of Biomolecular Structure, Leeds 2, England. Molecular biology; structure of fibres and biological macromolecules and tissues. *Fundamentals of Fibre Structure*, Oxford, 1933; *Textile Fibres Under the X-Rays*, Imperial Chemical Industries, Ltd., 1943; scientific papers on crystal structure, fibres, and proteins. Sc.D. (physics), Cambridge, 1937; D. (H.C.), Strasbourg, 1946. Gold Medal of Company of Dyers, 1934; Silvanus Thompson Medal of British Institute of Radiology, 1948; Medal of University of Lille, 1933; Warner Memorial Medal of Textile Institute, 1935; Actonian Prize of Royal Institute of Great Britain, 1935; Medal of University of Brussels, 1949; International Scientific Relations Medal of the American Society of European Chemists, 1953; Fellow of the Royal Society, 1940; Foreign Member of the Swedish Royal Academy of Sciences, 1957; Honorary Life Member of the New York Academy of Sciences, 1950; Member of the Royal Society of Sciences of Uppsala, 1946; Corresponding Member of the Istituto Lombardo di Scienze e Lettere, 1951. Professor of Biomolecular Structure and Honorary Reader in Textile Physics, University of Leeds. Wife — Frances; Children — Maureen Margaret, William Francis.

Augenstein, Leroy G. (5 March 1928, Decatur, Illinois) Brookhaven National Laboratory, Department of Biology, Associated Universities, Inc., Upton, L. I., New York. Irradiation of monomolecular films and dilute aqueous solutions of enzymes to study their structure and function; applications of information theory to biology; information processing by humans. B.S., Chicago, 1949; M.S., Illinois, 1952; Ph.D. (physico-chemical biology), Illinois, 1956. Associate Biophysicist, Department of Biology, Brookhaven National Laboratory. Wife — Elizabeth.

Baldwin, Robert L. (30 September 1927, Madison, Wisconsin) University of Wisconsin, Department of Biochemistry, College of Agriculture, Madison 6, Wisconsin. Protein physical chemistry. B.A., Wisconsin, 1950; D.Phil. (physical chemistry), Oxford, 1954. Rhodes Scholar 1950-53; Guggenheim Fellow 1958-59. Assistant Professor of Biochemistry, University of Wisconsin.

Baruch, Jordan J. (21 August 1923, New York) Bolt Beranek and Newman Inc., 50 Moulton Street, Cambridge 38, Massachusetts. Acoustics; instrumentation. S.B., M.I.T., 1948; S.M., M.I.T., 1948; Sc.D. (instrumentation), M.I.T., 1950. Eta Kappa Nu Award — "Outstanding Young Electrical Engineer for 1956." Vice-President of Research, Bolt Beranek and Newman Inc., Cambridge, Massachusetts; Lecturer, Department of Electrical Engineering, Massachusetts Institute of Technology. Wife — Rhoda; Children — Roberta Sara 9, Marjorie Jean 7, Lawrence Kim 3.

Beams, Jesse W. (25 December 1898) University of Virginia, Department of Physics, McCormick Road, Charlottesville, Virginia. Ultracentrifuging; separating of isotopes and other substances by centrifuging; methods of acceleration of ions; production and use of high centrifugal fields; solid-state and low-temperature physics. A.B., Fairmont (Wichita), 1921; M.A., Wisconsin, 1922; Ph.D. (physics), Virginia, 1925; Hon. Sc.D., William and Mary, 1941; Hon. Sc.D., North Carolina, 1946; Hon. Sc.D., Washington and Lee, 1946. Potts Medal, Franklin Institute, 1942; Naval Ordnance Development Award, 1946; Thomas Jefferson Award, 1956; John Scott Medal, 1957; Lewis Prize, American Philosophical Society, 1958. General Advisory Committee, Atomic Energy Commission; President, American Physical Society. Chairman, Department of Physics, University of Virginia. Wife — Maxine.

Becker, Edwin D. (3 May 1930, Columbia, Pennsylvania) National Institutes of Health, Laboratory of Physical Biology, National Institute of Arthritis and Metabolic Diseases, Bethesda 14, Maryland. Molecular structure and spectroscopy. B.S., Rochester, 1952; Ph.D. (chemistry), California, 1955. Physical Chemist, National Institutes of Health. Wife — Ellen; Children — Lynn 2.

Bennett, H. Stanley (22 December 1910, Tottori, Japan) University of Washington School of Medicine, Department of Anatomy, Seattle 5, Washington. Histology; submicroscopic cytology; cellular fine structure; optical instrumentation;

electron microscopy. A.B., Oberlin, 1932; M.D., Harvard, 1936. Professor of Anatomy and Head of the Department of Anatomy, University of Washington. Wife — Alice; Children — Edith 20, Anna 18, Henry J. 16, Patience 14.

Berliner, Robert W. (10 March 1915, New York, N. Y.) National Institutes of Health, National Heart Institute, Bethesda 14, Maryland. Renal physiology and electrolyte transport. B.S., Yale, 1936; M.D., Columbia, 1939. Associate Director in Charge of Research, National Heart Institute, National Institutes of Health. Wife — Lea; Children — Robert W., Jr. 13, Alice 11, Henry 8, Nancy 4.

Bernhard, Sidney A. (14 July 1927, Huntington, N. Y.) National Institutes of Health, National Institute of Mental Health, Bethesda 14, Maryland. Enzyme kinetics and molecular specificity; physical biochemistry. "Enzyme Kinetics," *The Enzymes* (Boyer, Lardy, and Myrbach, Eds.), Academic, 1958; chapter in *Techniques of Organic Chemistry*, Weissberger, Ed., Interscience, 1958. B.S., Brooklyn, 1948; M.S., Penn. State, 1949; Ph.D. (physical chemistry), Columbia, 1951. National Research Council Fellow, 1951-54; Weizmann Institute Senior Fellow, 1958-59; Phi Beta Kappa, 1948. Chief, Section on Physical Chemistry, National Institute of Mental Health, National Institutes of Health. Wife — Elga.

Blois, Marsden S., Jr. (5 January 1919, San Antonio, Texas) Biophysics Laboratory and Department of Physics, W. W. Hansen Laboratories of Physics, Stanford University, Stanford, California. Thin metallic films; magnetic properties of matter; biophysics; application of magnetic methods; biological free radicals. B.S., U. S. Naval Academy, 1941; M.S., Stanford, 1950; Ph.D. (physics), Stanford, 1952. Research Associate in Department of Physics, Biophysics Laboratory, Stanford University. Wife — Jean; Children — Marsden 13, Byron 9, Stephen 8, Philip 5.

Bloom, William (15 September 1899, Baltimore, Maryland) The University of Chicago, Committee on Biophysics, 5640 Ellis Avenue, Chicago 37, Illinois. Tissue culture; histology; histophysiology of bone; radiobiology; mitosis. *Textbook of Histology*, with A. Maximow, 7th Ed., Saunders, 1957; Editor, *Histopathology of Irradiation from External and Internal Sources*, McGraw-Hill, 1948. A.B., Johns Hopkins, 1919; M.D., Johns Hopkins, 1923. Professor of Anatomy and Member of the Committee on Biophysics, The University of Chicago. Wife — Margaret.

Bolt, Richard H. (22 April 1911, Peking, China) Department of Electrical Engineering, Massachusetts Institute of Technology, Cambridge 39, Massachusetts. Theoretical and experimental studies of sound distribution in enclosures; architectural acoustics; effects and control of noise. "Sound Waves in Rooms," with Philip M. Morse, *Reviews of Modern Physics*, XVI,

April, 1944; *Sonics*, with T. F. Hueter, Wiley, 1955. A.B. (architecture), California, 1933; M.A., California, 1937; Ph.D. (physics), California, 1939. Biennial Award, Acoustical Society of America, 1942; Medical Advisory Panel, Assistant Secretary of Defense for R. and E.; Governing Board, American Institute of Physics. Professor of Acoustics, Massachusetts Institute of Technology (on leave); Chairman of the Board, Bolt Beranek and Newman Inc., Cambridge, Massachusetts; Principal Consultant, Biophysics and Biophysical Chemistry Study Section, National Institutes of Health. Wife — Katherine; Children — Beatrice 19, Richard 15, Debbie 13.

Brill, Arthur S. (11 June 1927, Philadelphia, Pennsylvania) The Eldredge Reeves Johnson Foundation for Research in Medical Physics. The University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania. Magnetic studies of the reactions of metallo-proteins. A.B., California, 1949; Ph.D. (biophysics), Pennsylvania, 1956. Predoctoral Research Fellow of National Institutes of Health, 1950-55; Postdoctoral Research Fellow, National Research Council, Donner, start September 1958. Fellow in Medical Physics, The University of Pennsylvania, Wife — Patricia.

Bullock, Theodore H. (16 May 1915, Nanking, China) University of California at Los Angeles, Department of Zoology, Los Angeles 24, California. Comparative neurophysiology and neuroanatomy; marine ecological physiology. 1957, "Physiological Triggers" (Editor) *American Physiological Society*; A.B., California, 1936; Ph.D. (zoology), California, 1940. Fellow, American Academy of Arts and Sciences, 1958. Professor of Zoology, University of California at Los Angeles. Wife — Martha; Children — Christine 11, Stephen 9.

Callen, Herbert B. (1 July 1919, Philadelphia, Pennsylvania) The University of Pennsylvania, Department of Physics, Philadelphia 4, Pennsylvania. Theory of solids and of irreversible processes. B.S., Temple, 1941; A.M., Temple, 1942; Ph.D. (physics), M.I.T., 1947. Professor of Physics, The University of Pennsylvania. Wife — Sara; Children — Jill 12, Jed 9.

Calvin, Melvin (8 April 1911, St. Paul, Minnesota) University of California, Department of Chemistry and Chemical Engineering, Berkeley, California. Structure of molecules; heterogeneous and homogeneous catalysis; theoretical organic chemistry; mechanism of organic reactions; photosynthesis and biochemistry. *The Theory of Organic Chemistry*, with G. E. K. Branch, Prentice-Hall, 1941; *Isotopic Carbon*, with C. Heidelberger, J. C. Reid, B. M. Tolbert, and P. E. Yankwich, Wiley, 1949; *The Chemistry of the Metal Chelate Compounds*, with A. E. Martell, Prentice-Hall, 1952; *The Path of Carbon in Photosynthesis*, with J. A. Bassham, Prentice-Hall, 1957. B.S., Michigan, 1931; Ph.D. (chemistry), Minnesota, 1935; Hon. D.Sc., Michigan Mining and Technology, 1955; Hon. D.Sc.,

Nottingham, 1958. Flintoff Medal and Prize, British Chemical Society, 1953 (accepted in 1955); T. W. Richards Medal, Northeastern Section, American Chemical Society, 1956; Stephen Hales Award, American Society of Plant Physiologists, 1956; American Chemical Society Award for Nuclear Applications in Chemistry, 1957; Nichols Medal, New York Section, American Chemical Society, 1958; Member National Academy of Sciences. Joint Commission on Applied Radioactivity (representative of International Union of Biological Sciences, through IUPAP); in charge of Subcommittee on Photosynthesis for Living Cell Class, International Science Exhibition, Brussels Fair, 1958. Professor of Chemistry, and Director, Bio-Organic Chemistry Group, Radiation Laboratory, University of California. Wife — Genevieve; Children — Elin 12, Karole 10, Noel 5.

Carlson, Francis D. (29 June 1921, Syracuse, New York). The Johns Hopkins University, Thomas C. Jenkins Department of Biophysics, Baltimore, Maryland. Acoustics; communications; propagation of sound in moving fluids; electrophysiology; nerve metabolism; muscular contraction. Articles on nerve metabolism and muscular contraction. A.B., Johns Hopkins, 1942; Ph.D. (biophysics), Pennsylvania, 1949. Associate Professor and Chairman of the Department of Biophysics, The Johns Hopkins University. Wife — Carolyn; Children — Nils 5, Christopher 3, Kirk 3 months.

Carroll, William R. (9 June 1916, Logan, Utah) National Institutes of Health, Laboratory of Physical Biology, National Institute of Arthritis and Metabolic Diseases, Bethesda 14, Maryland. Influence of estrogen on the metabolism of the uterus; enzyme reactions; metabolism of amino acids; effects of x-rays on proteins; physical chemistry of proteins. A.B., Swarthmore, 1938; A.M., Harvard, 1940; Ph.D. (physiology), Harvard, 1942. Biochemist, Public Health Service Commission Corps., National Institutes of Health. Wife — Harriet; Children — Dana 14, Bruce 11, Catherine 9, Alan 6.

Chance, Britton (24 July 1913, Wilkes Barre, Pennsylvania) The University of Pennsylvania, Eldredge Reeves Johnson Foundation for Research in Medical Physics, School of Medicine, 612 Maloney Building, Philadelphia, Pennsylvania. Automatic ship steering; photoelectric control units; radar timing and computing devices; sensitive spectro-photometers; mechanisms of enzyme reactions. Volumes XIX, XX, *Radiation Laboratory Series*; McGraw-Hill, B.S., Pennsylvania, 1935; M.S., Pennsylvania, 1936; Ph.D. (physical chemistry), Pennsylvania, 1940; Ph.D. (biology), Cambridge, 1952; D.Sc., Cambridge, 1952. Presidential Certificate of Merit, 1950; Paul Lewis Award in Enzyme Chemistry, 1952. Professor and Director of the Eldridge Reeves Johnson Foundation for Research in Medical Physics, The University of Pennsylvania. Wife — Lilian; Children — Eleanor 19, Britton, Jr. 17, Jan 11, Ann 9, Jerry 8, Peter 8, Brooke 6, William 3, Margaret 7 months.

Condon, Edward U. (2 March 1902, Alamogordo, New Mexico) Washington University, Department of Physics, St. Louis 5, Missouri. Theoretical physics. *The Theory of Atomic Spectra*, with G. H. Shortley, Cambridge, 1935. A.B., California, 1924; Ph.D. (theoretical physics), California, 1926. President, American Physical Society, 1946; President American Association for the Advancement of Science, 1953; Editor, *Review of Modern Physics*. Head, Department of Physics, Washington University (St. Louis). Wife — Emilie; Children — Caroline, Paul, Joseph.

Connelly, Clarence M. (4 November 1916, Jamestown, New York) The Rockefeller Institute for Medical Research, 66th Street and York Avenue, New York 21, N. Y. Nerve physiology; nuclear physics; radar. A.B., Cornell, 1938; Ph.D. (biophysics), Pennsylvania, 1949, Associate, The Rockefeller Institute for Medical Research. Wife — Rita; Children — Megan 8.

Consolazio, William V. (12 October 1910, Brockton, Massachusetts). National Science Foundation, 1520 H. Street, NW, Washington, D. C. Chemical methodology; environmental physiology; research administration. B.S., Tufts, 1933; Harvard, 1933-34. Secretary of the Navy Commendation. Program Director, Molecular Biology, National Science Foundation. Wife — Hellana; Children — William Bruce 19.

Davidson, Norman R. (5 April 1916, Chicago, Illinois) California Institute of Technology, Division of Chemistry and Chemical Engineering, Pasadena, California. Chemical kinetics; shock waves; flash lamps and fast reactors; inorganic chemistry. B.S., Chicago, 1937; B.Sc., Oxford, 1939; Ph.D. (chemistry), Chicago, 1941. Professor of Chemistry, California Institute of Technology. Wife — Annemarie; Children — Terry 13, Laureen 10, Jeffrey 8, Brian 4.

Davies, David R. (22 February, 1927, Carmarthen, South Wales) National Institutes of Health, Section on Physical Chemistry, National Institute of Mental Health, Bethesda 14, Maryland. X-ray diffraction. B.A., Oxford, 1948; D.Phil. (chemical crystallography), Oxford, 1952. Visiting Scientist, National Institutes of Health. Wife — Cynthia M.; Children — Helen 2, Sally 1.

Doty, Paul (1 June 1920, Charleston, West Virginia) Harvard University, Department of Chemistry, Cambridge, Massachusetts. Light scattering; physical chemistry of polymers; poly-electrolytes, macromolecules, proteins and nucleic acid. B.S., Pennsylvania State, 1941; M.A., Columbia, 1943; Ph.D. (chemistry), Columbia, 1944. American Chemical Society Award in Pure Chemistry, 1956; National Academy of Sciences, 1957. Professor of Chemistry, Harvard University. Wife — Helga; Children — Gordon 9, Marcia 2.

Edds, Mac V., Jr. (25 March 1917, Newark, New Jersey) Brown University, Department of Biology, Providence 12, Rhode Island. Experimental embryology of amphibia and mammalia; nerve regeneration in mammals; embryonic development of collagen. Publications about amphibian embryology, growth and regeneration of the nervous system; embryonic development of collagen. B.A., Amherst, 1938; M.A., Amherst, 1940; Ph.D. (embryology), Yale 1943. Former Secretary, Growth Society. In charge of Woods Hole Embryology Course, Marine Biological Laboratories, 1958; Professor of Biology, Brown University. Wife — Louise; Children — Nancy 16, Kenneth 13, Carol 10.

Edelsack, Edgar A. (14 June 1924, New York, N. Y.) Department of the Navy, Office of Naval Research, Branch Office, 1000 Geary St., San Francisco 9, California. Radiological physics. B.S., Southern California, 1948. Physicist, Office of Naval Research. Wife — Lillian; Children — Leon 3.

Eden, Murray (17 August 1920, Brooklyn, New York) National Institutes of Health, Laboratory of Technical Development, National Heart Institute, Bethesda 14, Maryland pH standards; thermodynamics; instrumentation; physiological measurements in vivo. B.S., City College, 1939; M.S., Maryland, 1944; Ph.D. (physical chemistry), Maryland, 1951. Biophysicist, National Heart Institute, National Institutes of Health.

Elias, Peter (26 November 1923, New Brunswick, New Jersey) Massachusetts Institute of Technology, Department of Electrical Engineering, Cambridge 39, Massachusetts. Information Theory. S.B., M.I.T., 1944; M.A., Harvard, 1948; M.Eng.Sci., Harvard, 1949; Ph.D. (engineering science and applied physics), Harvard, 1950. Associate Professor of Electrical Engineering, Massachusetts Institute of Technology; Visiting Lecturer, University of California, 1958. Wife — Marjorie; Children — Ellen 6, Paul 2, Denny 1.

Engström, Arne V. (15 May 1920, Stockholm, Sweden) Karolinska Institutet, Institutionen för Medicinsk Fysik, Stockholm, 60, Sweden. *Biological Ultrastructure*, with J. B. Finean, Academic, 1958; *Bone and Radiostrontium*, Wiley, Disp., Karolinska, 1946; Doc., Karolinska, 1947; Med. Lic., Karolinska, 1950; Med. Dr., Karolinska, 1951. Professor of Medical Physics, Karolinska Institutet. Wife — Anna Lisa; Children — Vilhelm.

Fernández-Morán, Humberto V. (18 February 1924, Maracaibo, Venezuela) Massachusetts General Hospital, Mixter Laboratories for Electron Microscopy, Warren Building, Boston, Massachusetts. Electron microscopy; biophysics of nervous system. *The Submicroscopic Organization of Nerve Fibres as Revealed by Electron Microscopy*, Almquist and Wiksell, 1952. A.B., Schulgemeinde Wickersdorf, Germany, 1940; M.D., Munich, 1944; M.D., Caracas, 1945; Ph.D. (Biophysics), Stockholm, 1952. Member, Academia Ciencias Físicas y Matemáticas, Caracas, 1953; Member, Societies of Neurology,

Buenos Aires, Santiago, Lima; Honorary Member, American Academy of Neurology, 1955; Fellow, Societies of Surgery, Buenos Aires, Santiago, Chile, Porto Alegre, Lima. Associate Biophysicist, Massachusetts General Hospital; Visiting Lecturer, Department of Biology, Massachusetts Institute of Technology. Wife — Anna; Children — Brígida 4, Verónica 3.

Ferry, John D. (4 May 1912, Dawson, Yukon Territory, Canada) University of Wisconsin, Department of Chemistry, Madison 6, Wisconsin. Physical chemistry of macromolecules. A.B., Stanford, 1932; Ph.D. (chemistry), Stanford, 1935. Lilly Award, American Chemical Society, 1946; Bingham Medal, Society of Rheology, 1953. Professor of Chemistry, University of Wisconsin. Wife — Barbara; Children — Phyllis 13, John 9.

Fluke, Donald J. (17 February 1923, Nankin, Ohio) Duke University, Department of Zoology, Durham, North Carolina. U. V. action spectroscopy of virus; radiation on virus, enzyme. B.A., Wooster 1947; M.S., Yale, 1948; Ph.D. (physics), Yale, 1950. Associate Professor, Department of Zoology, Duke University. Wife — Margaret; Children — John 3.

Friedman, Francis L. (5 September 1918, New York, N. Y.) Massachusetts Institute of Technology, Department of Physics, Cambridge 39, Massachusetts. Nuclear and theoretical physics. A.B., Harvard, 1939; M.A., Harvard, 1940; Ph.D. (physics), M.I.T., 1949. Professor of Physics, Massachusetts Institute of Technology. Wife — Betty; Children — Gweneth 12, Karen 11, Seth 8.

Frishkopf, Lawrence S. (26 June 1930, Philadelphia, Pennsylvania) The Rockefeller Institute for Medical Research, 66th Street and York Avenue, New York 21, N. Y. Neurophysiology. A.B., Pennsylvania, 1951; Ph.D. (physics), M.I.T., 1956. Visiting Investigator, The Rockefeller Institute for Medical Research (Public Health Service Research Fellowship).

Fuhr, Irvin (16 January 1913, Sharon, Pennsylvania) National Institutes of Health, Division of Research Grants, Bethesda 14, Maryland. Toxicology of drugs and chemical warfare agents; vitamin and mineral metabolism; anemia and rickets; development of experimental diets and chemical methods; biochemistry. B.S., Wisconsin, 1937; M.S., Wisconsin, 1939; Ph.D. (biochemistry), Wisconsin, 1942; Executive Secretary, Biophysics and Biophysical Chemistry Study Section; Project Review Officer, Division of Research Grants, National Institutes of Health, Public Health Service. Wife — Ruby; Children — Jeffrey 11, Martin 9.

von Gierke, Henning E. (22 May 1917, Karlsruhe, Germany) Aero Medical Laboratory, WCLDN, Wright Air Development Center, Wright-Patterson Air Force Base, Ohio. Bioacoustics; aviation biophysics; reception of mechanical energy by body tissue and its effect. Two chapters in *Handbook of Noise Control* (Ed. C. M. Harris), McGraw-Hill, 1957; papers on physical and physiological acoustics, on the physics of vibra-

tion in tissues. Dipl. Ing., Tech. U. Karlsruhe, 1942; Dr. Ing. (communications in engineering; acoustics), Tech. U. Karlsruhe, 1944. National Research Council C.H.A.B.A. Committee; Vice-Chairman, American Standards Association Committee on Bioacoustics; Committee on Physical Acoustics. Chief, Bioacoustics Branch, Aero Medical Laboratory, Wright Air Development Center. Wife — Hanlo; Children — Karin 9 mos.

Glaser, Donald A. (21 September 1926, Cleveland, Ohio) Harrison M. Randall Laboratory of Physics, University of Michigan, Ann Arbor, Michigan. High-energy nuclear physics. B.S., Case, 1946; Ph.D. (physics), C.I.T., 1950. Charles Vernon Boys Prize (London Physical Society). Professor of Physics, University of Michigan.

Glimcher, Melvin J. (2 June 1952, Brookline, Massachusetts) Massachusetts Institute of Technology, Department of Biology, Cambridge 39, Massachusetts. Orthopedic surgery; biophysics; biophysical chemistry. Lower Limb Orthopedic Brace Research, M.I.T., 1950; "Macromolecular Aggregation States in Relation to Mineralization: The Collagen-Hydroxyapatite System as Studied *In Vitro*," *Proc. Nat. Acad. Sci.*, 1957. B.S. (Mech. Eng.), Purdue, 1945; B.S. (physics), Purdue, 1946; M.D., Harvard, 1950. Soma Weiss Prize (Harvard), 1950; Border Research Award in Medicine, 1950. Research Associate in Biology and Fellow of the School for Advanced Study, Massachusetts Institute of Technology; Assistant in Orthopedic Surgery, Massachusetts General Hospital. Wife — Geraldine; Children — Susan 8, Laurie 7, Nancy 6.

Goldman, David E., Cmdr., U. S. Navy (11 August 1910, Boston, Massachusetts) Naval Medical Research Institute, Biophysics Division, National Naval Medical Center, Bethesda 14, Maryland. Biophysics; electrophysiology; aviation physiology; bioacoustics. A.B., Harvard, 1931; Ph.D. (physiology), Columbia, 1943. Head, Biophysics Division, Naval Medical Research Institute. Wife — Jeanne; Children — James 11.

Goldstein, Moise H., Jr. (26 December 1926, New Orleans, Louisiana), Massachusetts Institute of Technology, Department of Electrical Engineering, Cambridge 39, Massachusetts. Communications engineering; biophysics. B.S., Tulane, 1949; S.M., M.I.T., 1951; Sc.D. (electrical engineering), M.I.T., 1957. Assistant Professor of Electrical Engineering, Massachusetts Institute of Technology. Wife — Janet.

Gray, Irving, Lt. Col., U.S. Army (27 April 1920, Boston, Massachusetts) Quartermaster Corps., Research and Development Command, Natick, Massachusetts. Physiology of mammalian erythrocytes; rate of synthesis of antibody protein; biochemistry of stress. B.S., Virginia Polytech, 1941; Ph.D. (biochemistry), M.I.T. Scientific Director, Quartermaster Research and Engineering Center Laboratories, Natick, Massachusetts. Wife — Mildred; Children — Cecily 9, Lisa 5.

Gross, Paul R. (25 November 1928, Philadelphia, Pennsylvania) New York University, Department of Biology, University Heights, New York 53, N. Y. Cellular physiology; cytochemistry; bio-

logical ultrastructure; biopolymers; cell division. A.B., Pennsylvania, 1950; Ph.D. (physiology), Pennsylvania, 1954. George Lieb Harrison Fellowship, 1952-53; National Science Foundation Fellowship, 1953-54; Lalor Fellowships, 1955, 1956; Elected Fellow of New York Academy of Sciences, 1956. Assistant Professor of Biology, University College and Graduate School of Arts and Sciences, New York University. Wife — Mona Lee; Children — Wendy 5, Aline 3.

Hardy, James D. (11 August 1904, Georgetown, Texas) The University of Pennsylvania, Department of Physiology, School of Medicine, Philadelphia, Pennsylvania. Heat loss in humans; temperature and pain sensation; analgesic action of drugs; infrared spectroscopy. A.B., Mississippi, 1924; M.A., Mississippi, 1925; Ph.D. (physics), Johns Hopkins, 1930. Professor of Physiology, School of Medicine, The University of Pennsylvania. Wife — Augusta.

Hart, Roger G. (3 September 1928, St. Paul, Minnesota) The University of Cambridge, MRC Unit, Cavendish Laboratory, Cambridge, England. Biophysics, mainly virus structural work. B.A., Minnesota, 1948; Ph.D. (biophysics), California, 1955. Associate Professor of Zoology, Washington University, St. Louis. Wife — Dorothy; Children — Roger 1.

Hartline, H. K. (22 December 1903, Bloomsburg, Pennsylvania) The Rockefeller Institute for Medical Research, 66th Street and York Avenue, New York 21, N. Y. Physiology of sense receptors; neuro-physiology of vision; physiology of photoreception; electric responses of vertebrate and arthropod eyes. B.S., Lafayette, 1923; M.D., Johns Hopkins, 1927. Warren medal, 1948; Howell Award, 1927. Member of the Council, The Biophysical Society, Member, The Rockefeller Institute for Medical Research. Wife — Elizabeth; Children — Daniel 18, Peter 16, Frederick 13.

Hearon, John Z. (17 February 1920, Sumpter, South Carolina) National Institutes of Health, National Institute of Arthritis and Metabolic Diseases, Bethesda 14, Maryland. Application of kinetics and thermodynamics to biology; rate behavior of metabolic systems; mathematics as applied to biology. B.S., The Citadel, 1941; M.S., Michigan, 1942; Ph.D. (biochemistry), Michigan, 1944; Ph.D. (mathematical biology), Chicago, 1949. Chief, Office of Mathematical Research, National Institutes of Health. Wife — Marion; Children — Kayce 7.

Henkin, Robert I. (5 October 1930, Los Angeles, California) University of California at Los Angeles, School of Medicine, Los Angeles, California. Neuro-endocrinology. "The Prediction of Behavior Response Patterns to Music," *Jour. Psychol.*, 1957, Vol. 44; "A Factorial Study of the Components of Music," *Jour. Psychol.*, 1955, Vol. 39. A.B., Southern California, 1951; M.A., U.C.L.A., 1953; Ph.D. (psychology of music), U.C.L.A., 1955. Summer Fellow in Biophysics, 1957; Atwater-Kent Fellow, U.C.L.A., 1954-55, Phi Beta Kappa, 1951. Fourth-year

medical student, U.C.L.A.; researcher in neuro-endocrinology, Department of Anatomy, University of California at Los Angeles, School of Medicine.

Hill, Terrell (19 December 1917, Oakland, California) University of Oregon, Department of Chemistry, College of Liberal Arts, Eugene, Oregon. Thermodynamics; statistical mechanics; surface and colloid chemistry; physical biochemistry. *Statistical Mechanics*, McGraw-Hill, 1956. A.B., California, 1938; Ph.D. (chemistry), California, 1942; Harvard, 1940-41. Guggenheim Fellow 1952-53; Arthur S. Flemming Award, 1955; Washington Academy of Sciences Award, 1956; Navy Distinguished Civilian Service Award, 1956. Professor of Chemistry, University of Oregon. Wife — Laura; Children — Julie 12, Lynn 9, Ernest 2.

Hodge, Alan J. (20 January 1926, Singapore, Malaya) Massachusetts Institute of Technology, Department of Biology, Cambridge 39, Massachusetts. Electron microscopy and physical chemistry of fibrous protein and lamellar systems. B.Sc. (Honors), Western Australia, 1946; Ph.D. (biophysics), M.I.T., 1952. Rennie Memorial Medal of the Royal Australian Chemical Institute, 1955. Research Associate Biology, Massachusetts Institute of Technology. Wife — Elsa; Children — Barbara 5, Peter and David 3, Richard 1.

Hogness, David S. (17 November 1925, Oakland, California) Washington University, Department of Microbiology, Euclid Avenue and Kingshighway, St. Louis 10, Missouri. Microbial genetics and biochemistry. "The α -galactosidase of *Aerobacter aerogenes*; its characteristics and induced synthesis," with E. H. Battley, *Fed. Proc.* 16: 1 (1957); "Studies on the induced synthesis of β -galactosidase in *Escherichia coli*: the kinetics and mechanism of sulfur incorporation," with M. Cohn and J. Monod, *Biochem. Biophys. Acta*, 16: 99 (1955). B.S., C.I.T., 1949; Ph.D. (chemistry; biochemical genetics), C.I.T., 1952. Assistant Professor of Microbiology, Washington University (St. Louis). Wife — Judith; Children — Peter 2, Christopher 2 mos.

Hornig, Donald F. (17 March 1920, Milwaukee, Wisconsin) Princeton University, Department of Chemistry, Princeton, New Jersey. Molecular spectroscopy; spectra of crystals; shock and detonation waves; fast reactions; theoretical chemistry. B.S., Harvard, 1940; Ph.D. (physical chemistry), Harvard 1943. Guggenheim and Fulbright Fellowships, 1954-55; National Academy of Science, 1957. Chairman, Department of Chemistry, Princeton University. Wife — Lilli; Children — Joanna 11, Ellen 7, Christopher 5, Leslie 1.

Hutner, Seymour H. (28 October 1911, Brooklyn, New York) Haskins Laboratories, 305 East 43 Street, New York 17, N. Y. Nutrition of bacteria, algae, and protozoa. "Microbiological Assays," *Anal. Chem.*, April 1958; *Biochemistry and*

Physiology of Protozoa (co-ed. with H. Seymour; author some chapters), Academic, 1955. B.S., City College, 1931; Ph.D. (microbiology), Cornell, 1937. Co-convenor, Conference on Growth of Protozoa, New York Academy of Sciences, 1953. Editorial Board, *Journal of Protozoology*; Staff Microbiologist, Haskins Laboratories. Wife — Margarita; Children — Reed 13.

Inoué, Shinya (5 January 1921, London, England) University of Rochester, Biological Laboratories, College of Arts and Sciences, River Campus Station, Rochester 20, New York. Submicroscopic structure in relation to cell function; experimental cytology; biophysics; optics. M.A., Princeton, 1950; Ph.D. (biology), Princeton 1951. Associate Professor of Biology, University of Rochester. Wife — Sylvia; Children — Heather Hill 9, Jonathan 4, Christopher 2, Stephen 1.

Kaplan, Henry S. (24 April 1918, Chicago, Illinois) Stanford University School of Medicine, Department of Radiology, Stanford University Hospitals, Clay and Webster Streets, San Francisco, California. Carcinogenesis by irradiation, especially leukemia induction by x-radiation of mice; biological effects of radiation on experimental tumors. B.S., Chicago 1938; M.D., Rush, 1940; M.S., Minnesota, 1944. Professor of Radiology and Executive Head, Department of Radiology, Stanford University School of Medicine. Wife — Leah; Children — Ann 6, Paul 5.

Kaplan, Nathan O. (25 June 1917, New York, N. Y.) Brandeis University, Graduate Department of Biochemistry, Waltham 54, Massachusetts. Relationship of vitamins to metabolism; microbial metabolism; influence of hormones on metabolism; action of antimetabolites; mechanism of enzyme action. *Methods in Enzymology*, co-ed. with S. P. Colowick, Academic, 1956-8; publications in enzymology, coenzyme action. A.B., U.C.L.A., 1939; Ph.D. (biochemistry), California, 1943. Shared Nutrition Award, 1949; shared Sugar Research Award, 1946; National Science Foundation Travel Award, 1952; Lilly Award, American Chemical Society, 1953; Member, American Academy of Arts and Sciences. Chairman, National Research Council Committee on Coenzymes; Special Consultant, National Cancer Institute; Member, American Cancer Society Advisory Committee on the Ideology of Cancer; Member, National Science Foundation Committee on Metabolic Biology, Professor of Biochemistry and Chairman of the Department, Brandeis University. Wife — Goldie; Children — Jerold 5.

Kasha, Michael (6 December 1920, Elizabeth, New Jersey) Florida State University, Department of Chemistry, Tallahassee, Florida. Molecular electronic spectroscopy; theoretical photochemistry; energy transfer. *Molecular Excitation* (in preparation). B.S., Michigan, 1943; Ph.D. (physical chemistry), California, 1945. Professor of Chemistry, Florida State University. Wife — Lilli; Children — Nicholas 2.

Katz, Bernhard (26 March 1911, Leipzig, Germany) University College London, Department of Biophysics, Faculty of Medical Sciences, Gower Street, London, W. C. 1, England. Mechanism of excitable tissues. *Electric Excitation of Nerve*, Oxford, 1939; papers on nerve and muscle physiology in *Jour. of Physiol., Proc. Roy. Soc. M.D.*, Leipzig, 1934; Ph.D. (physiology), London, 1938; D.Sc., London, 1943. Fellow, Royal Society, 1952. Professor and Head of Department of Biophysics, University College London. Wife — Marguerite; Children — David 11, Jonathan 8.

Kauzmann, Walter J. (18 August 1916, Mount Vernon, New York) Princeton University, Department of Chemistry, Princeton, New Jersey. Theory of optical rotatory power; plastic properties of matter; mechanism of protein denaturation. *Quantum Chemistry*, Academic, 1957. B.A., Cornell, 1937; Ph.D. (physical chemistry), Princeton, 1940. Associate Professor of Chemistry, Princeton University. Wife — Elizabeth; Children — Peter 5, Eric 3, Lise 1.

Kegeles, Gerson (23 April 1917, New Haven, Connecticut) Clark University, Chemical Laboratories, Worcester, Massachusetts. Thermodynamics; electrolyte solutions; refractometric optical methods for studying inhomogeneous media; sedimentation; electrophoresis; chromatography; diffusion. B.S., Yale, 1937; Ph.D. (physical chemistry), Yale, 1940. Professor of Chemistry, Clark University. Wife — Bertha; Children — Winifred 13, Lawrence 11, Stanley 10, Gloria 9, Joyce 7.

Kendrew, John C. (24 March 1917, Oxford, England) Cavendish Laboratory, The University of Cambridge, Cambridge, England. Biophysics and molecular biology; application of the techniques of x-ray crystallography to the elucidation of the structures of globular proteins; structure of myoglobin. Various papers on the structure of proteins in the *Proceedings of the Royal Society, Acta Crystallographica, Nature*. B.A., Trinity, 1939; M.A., Trinity, 1942; Ph.D. (x-ray studies, proteins), Trinity, 1949. Fellow of Peterhouse, Cambridge. Deputy Director of the Medical Research Council Unit for Molecular Biology, Cavendish Laboratory, Cambridge, England.

Kirkwood, John G. (30 May 1907, Gotebo, Oklahoma) Yale University, Department of Chemistry, New Haven, Connecticut. Dielectric polarization and loss in gases, liquids, and high polymers; quantum theory of intermolecular forces and the equation of state of gases. S.B., Chicago, 1926; Ph.D. (chemistry), M.I.T., 1929; Hon. Sc.D., Chicago, 1954. American Academy, Richards Medal, 1950, Lewis Medal, 1953. Sterling Professor and Chairman of Department of Chemistry, Yale University. Wife — Platonia. Klein, Elias (11 January 1890, Wilno, Poland) Naval Research Laboratory, Washington 25, D.C. Acoustics; ultrasonics; shock and vibration;

underwater sound; spark spectrum of gallium in air and hydrogen. B.S., Valparaiso, 1911; B.C.E., Valparaiso, 1912; Ph.D. (physics), Yale, 1921. Rho-C Rubber Award, U. S. Navy, 1932; Distinguished Civilian Service Award, U. S. Navy, 1945; D.O.D. Award, 1957. Consultant, Naval Research Laboratory; Special Consultant in Biophysics for Office of Naval Research. Wife — Bertha; Children — Marcia, David.

Kornberg, Arthur (3 March 1918, Brooklyn, N.Y.) Washington University School of Medicine, Department of Microbiology, Euclid Avenue and Kingshighway, St. Louis 10, Missouri. Enzymatic action of intermediary metabolism. B.S., City College, 1937; M.D., Rochester, 1941. Professor and Head of the Department of Microbiology, Washington University School of Medicine (St. Louis). Wife — Sylvie; Children — Roger 11, Thomas 9, Kenneth 8.

Kraut, Joseph (5 December 1926, New York, N.Y.) University of Washington School of Medicine, Department of Biochemistry, Seattle 5, Washington. Physical biochemistry and x-ray diffraction. B.S., Bucknell, 1950; Ph.D. (physical chemistry), C.I.T., 1954. Investigator of Howard Hughes Medical Institute; Assistant Professor of Biochemistry, University of Washington School of Medicine. Wife — Jean.

Lehninger, Albert L. (17 February 1917, Bridgeport, Connecticut) The Johns Hopkins University, Department of Physiological Chemistry, Baltimore, Maryland. Intermediary metabolism; biological oxidations and phosphorylations. B.A., Wesleyan, 1939; M.S., Wisconsin, 1940; Ph.D. (biochemistry), Wisconsin, 1942; Hon. D.Sc., Wesleyan, 1954. Paul Lewis Award, 1948. Professor and Director of the Department of Physiological Chemistry, The Johns Hopkins University. Wife — Janet; Children — James 12, Erika 11.

Lennox, Edwin S. (9 June 1920, Savannah, Georgia) University of Illinois, William Albert Noyes Laboratory, Department of Chemistry and Chemical Engineering, Urbana, Illinois. Microbiology; immunology. B.S., Vanderbilt, 1942; Ph.D. (physics), Cornell, 1948. Assistant Professor of Biochemistry, University of Illinois. Wife — Helen; Children — Virginia 17, Caroline 14, Nicolai 9, Carla 3.

Levinthal, Cyrus (2 May 1922, Philadelphia, Pennsylvania) Massachusetts Institute of Technology, Department of Biology, Cambridge 39, Massachusetts. Nuclear physics; photonuclear reactions; biophysics; virus multiplication; virus genetics; genetic control of enzymes. B.A., swarthmore, 1943; Ph.D. (physics), California, 1950. Member of the Council, The Biophysical Society. Professor of Biophysics, Department of Biology, Massachusetts Institute of Technology. Wife — Jeana; Children — Sarah 5, David 3, Adam 6 mos.

Liddel, Urner (3 September 1905, Butler, Missouri) National Institutes of Health, Laboratory of Physical Biology, National Institute of Arthritis and Metabolic Diseases, Bethesda 14, Maryland. Infrared spectroscopy; nuclear physics. A.B., Central College (Mo), 1926; Ph.D. (chemistry), George Washington, 1941. Biophysicist, National Institutes of Health. Wife — Evelyn; Children — Bruce 4.

Lorand, Laszlo (23 March 1923, Gyor, Hungary) Northwestern University, Department of Chemistry, College of Liberal Arts, Evanston, Illinois. Proteins of blood and muscle. Physiological Reviews, 1954. Absolutarium (medicine), Medical School, Budapest, 1948; Ph.D. (biomolecular structure), Leeds, 1951. Beit Memorial Fellowship, 1952. Associate Professor of Chemistry, Northwestern University. Wife — Joyce; Children — Michele 3.

MacNichol, Edward F., Jr. (24 October 1918, Toledo, Ohio) The Johns Hopkins University, The Thomas C. Jenkins Department of Biophysics, Baltimore, Maryland. Physiology of sense organs, especially retina; instrumentation for biological research. A.B., Princeton, 1941; Ph.D. (biophysics), Johns Hopkins, 1952. Assistant Professor of Biophysics, The Johns Hopkins University. Wife — Anne; Children — Edward 16, Anne 14.

Meister, Alton (1 June 1922, New York, N.Y.) Tufts University School of Medicine, Department of Biochemistry, Boston, Massachusetts. Biochemistry. *Biochemistry of the Amino Acids*, Academic, 1957. B.S., Harvard, 1942; M.D., Cornell, 1945. Paul Lewis Award in Enzyme Chemistry, 1954. Professor and Chairman of the Department of Biochemistry, Tufts University School of Medicine. Wife — Leonora; Children — Jonathan 9, Kenneth 6.

Meselson, Matthew S. (24 May 1930, Denver, Colorado) California Institute of Technology, Division of Chemistry and Chemical Engineering, Pasadena, California. Molecular biology. Ph.B., Chicago, 1951; Ph.D. (structural chemistry), C.I.T., 1957. Research fellow, Division of Chemistry and Chemical Engineering, California Institute of Technology.

Morales, Manuel F. (23 July 1919, San Pedro, Honduras) Dartmouth Medical School, Department of Biochemistry, Hanover, New Hampshire. Biochemical thermodynamics and kinetics; physical chemistry of muscle action. A.B., California, 1939; A.M., Harvard, 1941; Ph.D. (physiology), California, 1942. Physical Society Travel Award, 1950; U.S. Federal Service Flemming Award, 1956. Editorial Boards, *American Journal of Physiology*, *Journal of Applied Physiology*. Professor of Biochemistry, Dartmouth Medical School. Wife — Jean.

Morrison, Philip (7 November 1915, Somerville, New Jersey) Cornell University, Department of Physics, Ithaca, New York. Theory of nuclei; applications of nuclear physics in astronomy, geology, microbiology. B.S., C.I.T., 1936; Ph.D. (theoretical physics), California, 1940. Professor of Physics, Cornell University. Wife — Emily.

Mullins, L. J. (23 September 1917, San Francisco, California) Purdue University, Biophysical Laboratory, Lafayette, Indiana. Permeability of cells to ions and molecules; applications of radioisotopes to biological problems. B.S., California, 1937; Ph.D. (biophysics), California, 1940. Associate Professor of Biophysics, Purdue University. Wife — Rowena; Children — Carla 3, Andrew 9 months.

Neurath, Hans (29 October 1909, Vienna, Austria) University of Washington School of Medicine, Department of Biochemistry, Seattle 5, Washington. Chemistry of proteins and enzymes; proteolytic enzyme immunochemistry; surface and colloid chemistry; diffusion; electrophoresis; immunochemistry. *The Proteins* (with Bailey, Eds.), Vols. I, II, Academic, 1954. Ph.D. (colloid chemistry), Vienna, 1933. Member, Editorial Board, *Journal of Biological Chemistry*; Member, International Commission on Proteins. Professor of Biochemistry and Chairman of the Department, University of Washington School of Medicine. Wife — Hilde; Children — Peter 15.

Onley, John L. (14 February 1910, Wheaton, Illinois) Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts. Dielectric properties of gases, liquids, and proteins; physical and colloid chemistry, especially related to protein systems; fractionation and interactions of proteins and lipoproteins. A.B., Southwestern (Kans.), 1920; Ph.D. (physical chemistry), Wisconsin, 1932; Hon. M.A., Harvard, 1946; Hon. D.Sc., Southwestern, 1954. Chemical Society Award, 1942. President, Commission on Proteins, I.U.P.A.C. Professor of Biological Chemistry, Harvard Medical School. Wife — Genevieve; Children — Louise, Nancy.

Orgel, Leslie (12 January 1927, London, England) The University of Cambridge, Department of Theoretical Chemistry, Cambridge, England. Theoretical chemistry. Research papers in chemical journals. B.A., Magdalen (Oxford), 1949; Ph.D. (chemistry), Magdalen (Oxford), 1951; A. A. Noyes Fellow, C.I.T., 1953. Harrison Prize, 1956-57. Assistant Director of Research, Department of Theoretical Chemistry, The University of Cambridge. Wife — Alice; Children — Vivienne 3, Richard 1.

Pattee, Howard H., Jr. (5 October 1926, Pasadena, California) Stanford University, Department of Physics, Stanford, California. X-ray microscopy; biophysics. "X-ray Microscopy," with P. Kirkpatrick, in *Handbuch der Physik*, Springer, 1957; "Approaches to X-ray Microscopy," with P. Kirkpatrick, in *Advances in Biological and Medical Physics*, Academic, 1953. B.S., Stanford, 1948; Ph.D. (physics), Stanford,

1953. Sigma Xi Research Award, 1953. Acting Director, X-ray Laboratory, Department of Physics, Stanford University; Research Associate, Biophysics Laboratory, W. W. Hansen Laboratories of Physics. Wife — Mary Ellen; Children — Richard 3, Alan 1.

Platt, John Rader (29 June 1918, Jacksonville, Florida) The University of Chicago, Department of Physics, Chicago 37, Illinois. Far ultraviolet spectra; properties of hydrocarbons; design of infrared voice communication systems; theory of chemical spectra and chemical bonds; amplification and organization in photodetector networks. "The Chemical Bond" in *Handbuch der Physik*, Springer, 1958. B.S., Northwestern, 1936; M.S., Northwestern, 1937; Ph.D. (physics), Michigan, 1941. Guggenheim Fellow, 1952-3. Professor of Physics, The University of Chicago. Wife — Ann; Children — Terry 14, Christopher 12.

Podolsky, Richard (20 August 1923, Chicago, Illinois) Naval Medical Research Institute, National Naval Medical Center, Bethesda 14, Maryland. Muscle contraction; permeability; electrolyte theory. Ph.D. (biophysics), Chicago, 1952. Biophysicist, Naval Medical Research Institute.

Pollard, Ernest C. (16 April 1906, Yunnan, China) Yale University, Department of Biophysics, J. W. Gibbs Laboratory, New Haven, Connecticut. Nuclear physics; biophysics; radar; transmutation of light nuclei; scattering of light particles by light nuclei; energy levels of nuclei by observations of proton groups; physics of viruses; biological action of ionizing radiations. B.A., Cambridge, 1928; Ph.D. (physics), Cambridge, 1932. Member of the Council and of Executive Board, The Biophysical Society. Professor of Biophysics and Chairman of the Department, Yale University. Wife — Elizabeth; Children — Ann 21, Carol 18, Stephen 16.

Puck, Theodore T. (24 September 1916, Chicago, Illinois) University of Colorado Medical Center, Department of Biophysics, 4200 East Ninth Avenue, Denver 20, Colorado. Photochemistry; aerosols; air-borne infection; bacterial and virus metabolism; cell physiology and genetics. Articles in *Journal of Experimental Medicine*, *Journal of Chemical Physics*. B.S., Chicago, 1937; Ph.D. (physical chemistry), Chicago, 1940. Professor of Biophysics and Head of the Department, University of Colorado Medical Center (Denver). Wife — Mary; Children — Stirling 10, Jennifer 8, Laurel 5.

Putnam, Frank W. (3 August 1917, New Britain, Connecticut) University of Florida Medical School, Department of Biochemistry, Gainesville, Florida. Biochemistry; biophysical chemistry; proteins and viruses. Reviews on protein denaturation, virus reproduction, modification of protein. B.A., Wesleyan, 1939; M.A., Wesleyan, 1940; Ph.D. (biochemistry), Minnesota, 1942. Markle Scholar in Medical Sciences, University of Chicago, 1950-55. Secretary, American So-

ciety of Biological Chemists; Editor, *Archives of Biochemistry and Biophysics*; Member, National Science Foundation Divisional Committee on Biological and Medical Sciences. Professor of Biochemistry and Chairman of the Department, University of Florida Medical School. Wife — Dorothy; Children — Frank, Jr. 11, Beverly Susan 7.

Ribi, Edgar (5 September 1920, Zurich, Switzerland) National Institutes of Health, Rocky Mountain Laboratory, Hamilton, Montana. Physico-chemical studies on viruses and bacteria; physical chemistry of natural and synthetic fibres. Ph.D. (chemistry, physics, and mineralogy), Berne, 1948. Biophysicist, Rocky Mountain Laboratory, National Institutes of Health. Wife — Karin; Children — Nils 3, Hans 6 mos. Rice, Stuart A. (6 January 1932, New York, N.Y.) The University of Chicago, Institute for the Study of Metals, 5640 Ellis Avenue, Chicago 37, Illinois. Physical chemistry. B.S., Brooklyn, 1952; A.M. Harvard, 1954; Ph.D. (physical chemistry), Harvard, 1955. A. Cressy Morrison Prize of the New York Academy of Sciences, 1955; Society of Fellows, Harvard University, 1955-7. Professor of Chemistry, Department of Chemistry and Institute for the Study of Metals, The University of Chicago. Wife — Marian Ruth; Children — Barbara Ellen 1.

Rich, Alexander (15 November 1924, Hartford, Connecticut) Massachusetts Institute of Technology, Department of Biology, Cambridge 39, Massachusetts. Molecular structure of biological systems; structure of nucleic acids, fibrous proteins, steroids; x-ray crystallography. Publications about structure of collagen, ribonucleic acids, physical chemistry of proteins; crystallographic studies of helical molecules; abnormal hemoglobins. A.B., Harvard, 1947; M.D., Harvard, 1949. Member, Scientific Advisory Board (Molecular Biology), U. S. Air Force Office of Scientific Research; Member of the Council, The Biophysical Society. Associate Professor of Biophysics, Department of Biology, Massachusetts Institute of Technology. Wife — June; Children — Benjamin 1.

Roberts, Richard Brooke (7 December 1910, Titusville, Pennsylvania) Carnegie Institution of Washington, Department of Terrestrial Magnetism, 5241 Broad Branch Road, Washington 15, D.C. Nuclear physics; electronics; microbiology. *Studies of Biosynthesis in Escherichia coli*, Carnegie Institution, 1955. A.B., Princeton, 1932; A.M., Princeton, 1933; Ph.D. (physics), Princeton, 1937. Medal of Merit, 1947. Member of the Council, The Biophysical Society. Staff Member and Chairman of the Biophysics Section, Department of Terrestrial Magnetism, Carnegie Institution of Washington. Wife — Irena; Children — Richard 18, Julie 17, Tommy 8. Rosenberg, Murray D. (7 January 1925, Boston, Massachusetts) Biophysics and Biophysical Chemistry Study Section, 77 Massachusetts Avenue, Cambridge 39, Massachusetts. Medical and biological physics; ultrasonics and cavitation.

A.B., Harvard, 1947 (1946); M.A., Harvard, 1948; M.E.S., Harvard, 1950; Ph.D. (applied physics), Harvard, 1952; M.D., Harvard, 1956. Special Consultant, Biophysics and Biophysical Chemistry Study Section, National Institutes of Health. Wife — Pearl; Children — Carl 7, Lois 2.

Rosenblith, Walter A. (21 September 1913, Vienna, Austria) Massachusetts Institute of Technology, Department of Electrical Engineering, Cambridge 39, Massachusetts. Sensory communication processes; hearing; electrophysiology of nervous system; effects of noise. A *Bibliography in Audition*, with G. A. Miller, R. Galambos, I. J. Hirsh, and S. Hirsh, Vols. I, II, Harvard, 1950; Chapter 27, *Handbook of Experimental Psychology*, Wiley, 1951; "Noise and Man," Vol. II, *Handbook of Acoustic Noise Control*, with K. N. Stevens, et al., WADC TR 52-204, 1953; "Responses to Successive Auditory Stimuli at the Cochlea and at the Auditory Cortex," with M. R. Rosenzweig, *Psych. Monographs*, 1953; "Relation between Auditory Psychophysics and Auditory Electrophysiology," *Transactions of the New York Academy of Sciences*, 1957. Ing. Rad., Bordeaux, 1936; Ing. Rad. E.S.E., Ecole Supérieure d'Electricité, 1937. Member, New York Academy of Sciences; Member of the Council and of the Executive Board, The Biophysical Society; Fellow, American Academy of Arts and Sciences; Fellow, The Acoustical Society of America; Member, Editorial Board, *Information and Control*. Chairman of Working Groups 22 (Criteria for Hazardous Noise Exposure) and 32 (Criteria for Impulse Noise), C.H.A.B.A.; Chairman, Committee Z24-X20 (Community Problems of Noise), American Standards Association; Consultant and Research Advisor, American Academy of Ophthalmology and Otolaryngology. Professor of Communications Biophysics, Department of Electrical Engineering, Massachusetts Institute of Technology. Wife — Judy; Children — Sandra 13, Ronald 12.

Schmitt, Francis O. (23 November 1903, St. Louis, Missouri) Massachusetts Institute of Technology, Department of Biology, Cambridge 39, Massachusetts. Investigations of tissue; ultrastructure by polarization optics and electron microscopy, and interpretation of tissue function, especially nerve, muscle, and connective tissue. A.B., Washington (St. Louis), 1924; Ph.D. (physiology), Washington (St. Louis), 1927; Hon. Sc.D., Johns Hopkins, 1950; Hon. Sc.D., Washington, 1952; Hon. Sc.D., Chicago, 1957. Alsop Award American Leather Chemical Association, 1947; Lasker Award, Public Health Service, 1956. Fellow, American Academy of Arts and Sciences; Fellow, American Association for the Advancement of Science; Member, National Academy of Sciences; Member, American Philosophical Society; Member, Société Philomatique de Paris. Member of the Council, The Biophysical Society. Institute Professor and Professor of Biology, Massachusetts Institute of Technology. Wife — Barbara; Children — Robert, Marion.

Schmitt, Otto H. (6 April 1913, St. Louis, Missouri) University of Minnesota, Department of Physics, Minneapolis 14, Minnesota. Biophysical mechanism of the nerve excitatory process; vector electrocardiography; biological transfer functions; space biology; three-dimensional cathode-ray oscillography; electronic circuitry; antenna radiation pattern measurements; electronic circuitry; geomagnetometry. A.B., Washington (St. Louis), 1934; Ph.D. (physics, zoology), Washington (St. Louis), 1937. Member of the Council and of the Executive Board, and Vice-President, The Biophysical Society. Professor of Zoology and Physics (Biophysics), University of Minnesota. Wife — Viola.

Shulman, Sidney (22 August 1923, Baltimore, Maryland) University of Buffalo School of Medicine, Department of Bacteriology and Immunology, Buffalo, New York. Physical chemistry of proteins; blood clotting; tissue proteins; blood and spinal fluid proteins; immunochemistry; viruses. B.S., George Washington, 1944; Ph.D. (chemistry), Wisconsin, 1949; Senior Research Fellowship with N.I.H. Assistant Professor of Immunochimistry, Department of Bacteriology and Immunology, University of Buffalo. Wife — Phyllis; Children — Katharine 7, Michael 5, Stephen 1.

Singer, S. Jonathan (23 May 1924, New York, N.Y.) Yale University, Sterling Chemistry Laboratory, 225 Prospect Street, New Haven, Connecticut. Physical chemistry of proteins and high polymers; immunology and immunochemistry. A.B., Columbia, 1943; A.M., Columbia, 1945; Ph.D. (chemistry), Brooklyn Polytech., 1947. Associate Professor of Physical Chemistry, Yale University. Wife — Ruth.

Sinsheimer, Robert L. (5 February 1920, Washington, D.C.) California Institute of Technology, Division of Biology, Pasadena, California. Physical and chemical properties of nucleic acids; biological effects of ultraviolet radiation; biological applications of ultraviolet and infrared spectroscopy. S.B., M.I.T., 1941; S.M., M.I.T., 1942; Ph.D. (biophysics), M.I.T., 1948. Professor of Biophysics, Division of Biology, California Institute of Technology. Wife — Joan; Children — Lois 9, Kathy 7, Roger 3.

Sizer, Irwin W. (4 April 1910, Bridgewater, Massachusetts) Massachusetts Institute of Technology, Department of Biology, Cambridge 39, Massachusetts. Chemical stimulation of animals; spectroscopy of biological materials; enzyme kinetics; action of oxidases on proteins; amino acid oxidation and transemination. A.B., Brown, 1931; Ph.D. (physiological biochemistry), Rutgers, 1935. Fellow, American Academy of Arts and Sciences; President, M.I.T. Chapter, Sigma Xi. Professor of Biology and Head of the Department, Massachusetts Institute of Technology. Wife — Helen; Children — Meredith 12.

Sjöstrand, Fritiof S. (5 November 1912, Stockholm, Sweden) Karolinska Institutet, Anatomiska Institutionen, Stockholm 60, Sweden. Electron

Microscopy. *Electron Microscopy of Cells and Tissues*, Academic, 1956. Med. Lic., Karolinska, 1941; Med. Dr., Karolinska, 1945. Associate Professor of Anatomy, Karolinska Institutet. Wife — Ebba; Children — Ebba 13, Rutger 12, Johan 1.

Smith, Homer W. (2 January 1895, Denver, Colorado) New York University — Bellevue Medical Center, Department of Physiology, 550 First Avenue, New York 16, N.Y. Physiology. *The Kidney: Structure and Function in Health and Disease*, Oxford, 1951; *Principles of Renal Physiology*, Oxford, 1956; Kamongo, Viking, 1932; *Man and His Gods*, Little Brown, 1952; *From Fish to Philosopher*, Little Brown, 1953. B.A., Denver, 1917; Sc.D. (physiology), Johns Hopkins, 1921; Hon. M.S., Yale, 1937. Lasker Award 1948; Presidential Medal for Merit, 1948; Passano Award, 1954. President, Mount Desert Island Biological Laboratory, Salisbury Cove, Maine; Trustee, Bermuda Station for Biological Research; Professor of Physiology, New York University — Bellevue Medical Center. Wife — Margaret; Children — Homer (Hudi) 7.

Sober, Herbert A. (24 February 1918, New York, N.Y.) National Institutes of Health, National Cancer Institute, Room 122, Building 6, Bethesda 14, Maryland. Enzymes; adsorption, chromalagraphy of proteins and nucleic acids; biophysical chemistry. B.S., City College, 1938; M.S., Wisconsin, 1940; Ph.D. (biochemistry), Wisconsin, 1942. Scientific Director and Head of the Physical Chemistry and Chromatography Section, Laboratory of Biochemistry, National Cancer Institute, National Institutes of Health. Wife — Eva; Children — Lillian Sara 11, Barbara Jane 7.

Stetten, DeWitt, Jr. (31 May 1909, New York, N.Y.) National Institutes of Health, National Institute of Arthritis and Metabolic Diseases, Bethesda 14, Maryland. Intermediary metabolism of fats and carbohydrates; experimental diabetes; evaluation of rates of chemical process in the intact animal; metabolic defects in gout; muscular dystrophy. *Principles of Biochemistry*, with White, Handler, and Smith, McGraw-Hill, 1954. A.B., Harvard, 1930; M.D., Columbia, 1934; Ph.D. (biochemistry), Columbia 1940. Joseph Mather Smith Prize, 1943; Alvarenga Prize Award, 1954; Horace Mann Award for Outstanding Alumnus of the Year, 1957; Banting Medal, American Diabetes Association, 1957. Associate Director in Charge of Research, National Institute of Arthritis and Metabolic Diseases, National Institutes of Health. Wife — Marjorie; Children — Gail 13, Nancy 12, Mary 8, George 4.

Stetten, Marjorie R. (13 July 1915, New York, N.Y.) National Institutes of Health, National Institute of Arthritis and Metabolic Diseases, Bethesda 14, Maryland. Intermediary metabolism of amino acids and carbohydrates. B.S., Rutgers, 1937; Ph.D. (biochemistry), Columbia, 1944. Biochemist, National Institutes of Health. Husband — DeWitt, Jr.; Children — Gail 13, Nancy 12, Mary 8, George 4.

Stockmayer, Walter H. (7 April 1914, Rutherford, New Jersey) Massachusetts Institute of Technology, Department of Chemistry, Cambridge 39, Massachusetts. Compressibility of gases; intermolecular forces; thermodynamics of polymers. S.B., M.I.T., 1935; B.Sc., Oxford, 1937; Ph.D. (chemistry), M.I.T., 1940. Member, National Academy of Sciences. Professor of Physical Chemistry, Massachusetts Institute of Technology. Wife — Sylvia; Children — Ralph 15, Hugh 13.

Sutherland, Gordon B. B. M. (8 April 1907, Watten, Caithness, Scotland) National Physical Laboratory, Teddington, Middlesex, England. Molecular structure by infrared analysis. *Infrared and Raman Spectra*, Methuen, 1935; papers on DNA and proteins in *Proceedings of the Royal Society, Advances in Protein Chemistry*. M.A., St. Andrews, 1928; B.Sc., St. Andrews, 1929; Ph.D. (physics), Cambridge, 1933; Sc.D., Cambridge, 1948; LL.D., St. Andrews, 1958. Fellow of the Royal Society. Director, National Physical Laboratory. Wife — Gunborg; Children — Ann, Kertsin, Mary.

Svensson, Svante Harry (17 July 1913, Göteborg, Sweden) LKB — Produkter Fabrik-saktiebolag, P.O. Box 12220, Stockholm 12, Sweden. Electrophoresis; ionophoresis; refractometric analysis; optics; biophysical chemistry. "Fractionation of Serum with Ammonium Sulfate and Water Dialysis, studied by Electrophoresis," *J. Biol. Chem.*, 1941 (Treatise for the Licentiat); "Electrophoresis by the Moving Boundary Method. A Theoretical and Experimental Study," *Ark. Kem. Mineral. Geol.*, 1946 (Fil. dr. Thesis); "Zone Electrophoresis in a Density Gradient, Stability Conditions and Separation of Serum Proteins," with L. Hagdahl, and K.-D. Lerner, *Science Tools*, 1957. Fil. kand., Uppsala, 1936; Fil. lic., Uppsala, 1942; Fil. dr. (physical chemistry), Uppsala, 1946. Director of Research, LKB — Produkter Fabrik-saktiebolag.

Szilard, Leo (11 February 1898, Budapest, Hungary) The University of Chicago, Department of Biophysics, 5640 Ellis Avenue, Chicago 37, Illinois. Nuclear physics; growth, mutations, and genetics of bacteria and bacterial viruses. Dr. Phil. (physics), Berlin, 1928. Fellow, Physical Society. Professor of Biophysics, The University of Chicago.

Taylor, Edwin W. (8 June 1929, Toronto, Ontario, Canada) Massachusetts Institute of Technology, Department of Biology, Cambridge 39, Massachusetts. Biophysics. B.A., Toronto, 1952; M.Sc., McMaster (Hamilton), 1955; Ph.D. (biophysics), Chicago, 1957. Research Associate in Biology, Massachusetts Institute of Technology. Wife — Heather; Children — Michael 7 mos.

Thompson, Thomas E. (15 March 1926, Cincinnati, Ohio) The Johns Hopkins School of Medicine, Department of Physiological Chemistry, Baltimore 5, Maryland. Physical biochemistry. B.A., Kalamazoo, 1949; Ph.D. (medical sciences), Harvard, 1955. Assistant Professor of Physiological Chemistry, The Johns Hopkins School of Medicine. Wife — Maria-Michaela.

Tinoco, Ignacio, Jr. (22 November 1930, El Paso, Texas) University of California, Department of Chemistry, Berkeley 4, California. Physical chemistry. "Optical Activity of Helices," *Journal of the American Chemistry Society*, *Journal of Physical Chemistry*. B.S., New Mexico, 1951; Ph.D. (physical chemistry), Wisconsin, 1954. Assistant Professor of Chemistry, University of California. Wife — Joan; Children — Kathy 3.

Tobias, Cornelius A. (28 May 1918, Budapest, Hungary) University of California, Donner Laboratory, Berkeley 4, California. Radiobiology; biophysics; biological effects of radiation; nuclear physics; aviation medicine. M.A., California, 1940; Ph.D. (nuclear physics), California, 1942. Editor, *Advances in Biological Medical Physics*, Academic; Member of the Council, The Biophysical Society. Professor of Medical Physics and Radiation Laboratory. Wife — Ida; Children — Eve 13, Martin 11.

Townes, Charles H. (28 July 1915, Greenville, South Carolina) Columbia University, Columbia Radiation Laboratory, 538 West 120 Street, New York 27, N.Y. Microwave spectroscopy, hyperfine effects; nuclear moments and structure; molecular structure; atomic time standards; electronic devices, masers, radio astronomy. *Microwave Spectroscopy*, McGraw-Hill, 1955. B.A. and B.S., Furman, 1935; M.A., Duke, 1937; Ph.D. (physics), C.I.T., 1939. Research Corporation Award, 1958; Page One Award, 1958. Member, National Academy of Sciences; Scientific Advisory Board for U. S. Air Force. Professor of Physics, Columbia University. Wife — Frances; Children — Linda 15, Ellen 11, Carla 9, Holly 6.

Townsend, Jonathan (17 July 1922, Durango, Colorado) Washington University, Department of Physics, St. Louis 5, Missouri. Nuclear and paramagnetic resonance; nuclear physics. B.S., Denver, 1943; M.A., Washington (St. Louis), 1948; Ph.D. (physics), Washington (St. Louis), 1951. Atomic Energy Commission Predoctoral Fellow, 1949-50. Associate Professor of Physics, Washington University (St. Louis). Wife — Patricia; Children — Victoria 2.

Uttley, Albert M. (14 August 1906, London, England) National Physical Laboratory, Teddington, Middlesex, England. Computer design; automatic control; theories of neural organization. Probability of Neural Connexions, *Proc. Roy. Soc.*, 1955; papers in *Automata Studies*, *An Mattis. Studies*, P.U.P., 1956; B.Sc., 1st Hons. (Mathematics), Kings (London), 1926; Ph.D. (psychology), Kings (London) 1940. Kelvin Premium I.E.E., 1946; Simms Gold Medal R.Ae.S., 1950. A.F.R.Ae.S. Fellow of Institute of Navz; One-time Council Member of Society of the Institute of Technology; Member, Editorial Committee, *Quarterly Journal of Experimental Psychology*. Superintendent, Control Mechanisms and Electronics Division, National Physical Laboratory. Wife — Gwendoline Lucy; Children — Jane Carolyn 14, Susan Primrose 11.

Vallee, Bert L. (1 June 1919, Hemer, Westphalia) Peter Bent Brigham Hospital, Biophysics Research Laboratory of the Department of Medicine, 720 Huntington Avenue, Boston, Massachusetts. Function of trace metals in biological systems; physics of spectrographic sources; clinical investigations. B.S., Berne, 1938; M.D., N.Y.U., 1943. Director, Biophysics Research Laboratory, Harvard Medical School, Peter Bent Brigham Hospital; Assistant Professor of Medicine, Harvard Medical School; Research Associate in Biology, Massachusetts Institute of Technology. Wife — Natalie.

Waugh, David F. (6 January 1915, Kirkwood, Missouri) Massachusetts Institute of Technology, Department of Biology, Cambridge 39, Massachusetts. Surface chemistry; physical chemistry of proteins and their interactions. A.B., Washington (St. Louis), 1935; Ph.D. (physiology), Washington (St. Louis), 1940. Professor of Biophysics, Massachusetts Institute of Technology. Wife — Molly; Children — Linda 16, Helen 13, Sandra 8.

Weiss, Paul (21 March 1898, Vienna, Austria) The Rockefeller Institute for Medical Research, 66th Street and York Avenue, New York 21, N.Y. Biology. *Principles of Development*, Holt, 1939. Ph.D. (biology), Vienna, 1922; Hon. M.D., Frankfurt, 1949; Hon. Sc.D., Giessen, 1957. Army-Navy Citation of Merit, 1947. Member, National Academy of Sciences, American Philosophical Society, Royal Swedish Academy of Science. Member, Science Advisory Board of the President of the U. S.; Past Chairman, Division of Biological Agriculture, National Research Council. Member and Professor, The Rockefeller Institute for Medical Research; Head, Laboratory of Developmental Biology. Wife — Maria Helen.

Williams, Robley C. (13 October 1908, Santa Rosa, California) University of California, Virus Laboratory, Berkeley 4, California. Electron microscopy of viruses and of virus-infected cells. A.B., Cornell, 1931; Ph.D. (physics), Cornell, 1935. Longstreth Medal, Franklin Institute, 1939; Scott Award, 1954. Consultant, Evaporated Metal Films Corporation, U. S. Army Chemical Corps, U. S. Public Health Service. Member of the Council and of Executive Board, and President, The Biophysical Society. Professor of Biophysics and Research and Biophysicist, University of California. Wife — Margery; Children — Robley, Jr. 17, Grace 16.

Wood, Thomas H. (22 June 1923, Atlanta, Georgia) The University of Pennsylvania, Department of Physics, Philadelphia, Pennsylvania. Effects of radiations on microorganisms; influence of temperature and protective agents. B.S., Florida, 1946; Ph.D. (biophysics), Chicago, 1953. Associate Professor of Physics, The University of Pennsylvania. Wife — Mary; Children — David 6, Robert 5, Scott 3.

Young, Allan C. (23 May 1911, Canada) University of Washington School of Medicine, Department of Physiology and Biophysics, Seattle 5, Washington. Electricity; magnetism; industrial physics; nerve and muscle physiology; respiration. B.A., British Columbia, 1930; M.A., British Columbia, 1932; Ph.D. (physics), Toronto, 1934. Professor of Physiology and Biophysics, University of Washington. Wife — Barbara; Children — Carolyn 10, Chris 7.

Zimm, Bruno H. (31 October 1920, Woodstock, N.Y.) General Electric Research Laboratory, Physical Chemistry Section, P.O. Box 1088, Schenectady, New York. Thermodynamics of crystals and solutions; properties and structure of high polymers. A.B., Columbia, 1941; M.S., Columbia, 1943; Ph.D. (chemistry), Columbia,

1944. Baekland Award, American Chemical Society, 1957. Vice-Chairman, Division of High-Polymer Physics, American Physical Society. Research Associate, General Electric Research Laboratory. Wife — Georgianna; Children — Louis 6, Carl 4.

Zirkle, Raymond E. (9 January 1902, Springfield, Illinois) The University of Chicago, Committee on Biophysics, 5640 Ellis Avenue, Chicago 37, Illinois. Comparative biological effects of ultraviolet and various ionizing radiations; mechanisms of mitosis. A.B., Missouri, 1928; Ph.D. (botany), Missouri, 1932. Member of the Council, The Biophysical Society. Chairman, Committee on Biophysics, The University of Chicago. Wife — Mary; Children — Raymond, Jr., Thomas E.