

## APPENDIX II

### RESEARCH SUPPORT PROGRAM

BASIC RESEARCH GRANTS AWARDED IN FISCAL YEAR 1955

#### *Anthropological and Related Sciences*

- HARVARD UNIVERSITY, Cambridge, Mass.; Gordon R. Willey, Peabody Museum; *Prehistoric Settlement Patterns in the Maya Area*; 1 year; \$11,500.
- SOUTHERN ILLINOIS UNIVERSITY, Carbondale, Ill.; J. Charles Kelly, Department of Anthropology and Director of the Museum; *An Archaeological and Ecological Study of Pre-Agricultural Human Occupations of the Eastern United States*; 1 year; \$8,000.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; William L. Straus, Jr., Laboratory of Physical Anthropology; *Studies on Primate Evolution*; 1 year; \$10,000.
- UNIVERSITY OF OREGON, Eugene, Oreg.; Luther S. Cressman, Department of Anthropology; *A Study in Oregon Coast Prehistory*; 2 years; \$11,100.
- UNIVERSITY OF OREGON, Eugene, Oreg.; J. Arnold Shotwell, Museum of Natural History; *Effects of Environmental Change on Community Organization over Long Periods of Time*; 2 years; \$11,100.

#### *Astronomy*

- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Samuel Herrick, Department of Astronomy; *The Orbits of Icarus and other Astronomical Objects*; 3 years; \$5,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Otto Struve, Department of Astronomy; *The Composition of the Stars*; 2 years; \$21,000.
- CASE INSTITUTE OF TECHNOLOGY, Cleveland, Ohio; J. J. Nassau, Department of Astronomy; *Carbon Stars near the Galactic Equator*; 2 years; \$13,500.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; A. B. Meinel and W. W. Morgan, Department of Astronomy; *Microschmidt Reddened B-Star Survey*; 18 months; \$13,000.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; Harold Urey, Institute for Nuclear Studies; *Chemical Reactions in Interstellar Matter*; 1 year; \$7,500.
- COLUMBIA UNIVERSITY, New York, N. Y.; Jan Schilt, Department of Astronomy; *Trigonometric Parallaxes of Stars*; 1 year; \$2,400.
- HARVARD UNIVERSITY, Cambridge, Mass.; Bart J. Bok and Harold I. Ewen, Harvard College Observatory; *Radio Astronomy in the Microwave Regions*; 15 months; \$132,000.
- INDIANA UNIVERSITY, Bloomington, Ind.; Halton C. Arp, Department of Astronomy; *Photometric Study of the Small Magellanic Cloud*; 2 years; \$18,600.
- INDIANA UNIVERSITY, Bloomington, Ind.; John B. Irwin, Department of Astronomy; *Photoelastic Observations of Southern Cepheids*; 1 year; \$5,800.
- INDIANA UNIVERSITY, Bloomington, Ind.; M. H. Wrubel, Department of Astronomy; *Evolutionary Sequences of Stellar Models*; 1 year; \$2,900.
- UNIVERSITY OF KANSAS, Lawrence, Kans.; H. G. Horak, Department of Physics and Astronomy; *Solar System Photometry*; 2 years; \$7,500.
- LOWELL OBSERVATORY, Flagstaff, Ariz.; E. C. Slipher and A. G. Wilson, Secretaries, Mars Committee; *Photographic Patrol of Mars*; 4 months; \$2,000.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; Willem J. Luyten, Department of Astronomy; *Proper Motions of Faint Stars*; 3 years; \$17,800.

RANDOLPH-MACON WOMAN'S COLLEGE, Lynchburg, Va.; A. Marguerite Risley, Department of Mathematics; *Motions of Long Period Variable Stars*; 2 years; \$2,000.

UNIVERSITY OF VIRGINIA, Charlottesville, Va.; A. N. Vyssotsky, Department of Astronomy; *Spectra of Faint Stars*; 1 year; \$4,800.

UNIVERSITY OF VIRGINIA, Charlottesville, Va.; Harold L. Alden, Department of Astronomy; *Astrometric Study of Selected Stars*; 2 years; \$10,000.

WESLEYAN UNIVERSITY, Middletown, Conn.; Charles E. Gasteyer, Department of Astronomy, Yale University; *Photographic Observations of Double Stars*; 3 years; \$3,000.

UNIVERSITY OF WISCONSIN, Madison, Wis.; A. E. Whitford, Department of Astronomy; *Absolute Spectrophotometry of Stars*; 2 years; \$10,000.

### Chemistry

UNIVERSITY OF ARKANSAS, Fayetteville, Ark.; Samuel Siegel, Department of Chemistry; *Substituent Effect in the Reactions of a Group Attached to the Cyclohexane Ring*; 2 years; \$9,700.

UNIVERSITY OF ARKANSAS, Fayetteville, Ark.; E. S. Amis, Department of Chemistry; *Influence of Charge and Field on Chemical Processes*; 2 years; \$15,000.

BARNARD COLLEGE, Morningside Heights, New York, N. Y.; Emma Dietz Stecher, Department of Chemistry; *Benzylidenepyruvic Acid Studies*; 2 years; \$17,500.

BRIGHAM YOUNG UNIVERSITY, Provo, Utah; J. Rex Goates, Department of Chemistry; *Mechanism of Adsorption of Ions by Silicate Minerals*; 1 year; \$5,100.

UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Lawrence J. Andrews and Raymond M. Keefer, Department of Chemistry, Davis, Calif.; *Molecular Addition Compounds*; 2 years; \$7,500.

UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; W. F. Giauque, Department of Chemistry; *Thermodynamic and Magnetic Properties of Matter at Low Temperatures*; 1 year; \$30,000.

UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; William G. Young, Department of Chemistry; *Displacement Reactions Involving Allylic Systems*; 2 years; \$11,500.

CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh, Pa.; Robert G. Parr and Frank O. Ellison, Department of Chemistry; *Electronic Structure of Molecules*; 2 years; \$21,500.

UNIVERSITY OF CHICAGO, Chicago, Ill.; W. F. Libby, Institute for Nuclear Studies; *Radiocarbon Dating*; 2 years; \$20,200.

UNIVERSITY OF CHICAGO, Chicago, Ill.; Earl A. Long, Institute for the Study of Metals; *Properties of Matter at Low Temperatures*; 2 years; \$16,000.

UNIVERSITY OF CINCINNATI, Cincinnati, Ohio; Hans H. Jaffe, Department of Chemistry; *Carbon Metal Bond Energies*; 3 years; \$17,200.

CLARK UNIVERSITY, Worcester, Mass.; Thomas T. Sugihara, Department of Chemistry; *Yields of Long-Lived Products in the Deuteron-Induced Fission of U238*; 2 years; \$10,500.

UNIVERSITY OF COLORADO, Boulder, Colo.; Stanley J. Cristol, Department of Chemistry; *Mechanism of Elimination Reactions*; 3 years; \$13,000.

CORNELL UNIVERSITY, Ithaca, N. Y.; Jerrold Meinwald, Department of Chemistry; *1, 3 Shift in Molecular Rearrangements*; 2 years; \$11,000.

DRAKE UNIVERSITY, Des Moines, Iowa; William H. Coppock, Department of Chemistry; *The Reaction of Aryl Esters of Chloroformic Acid with Aromatic Hydrocarbons*; 1 year; \$2,700.

DUKE UNIVERSITY, Durham, N. C.; Charles Hauser, Department of Chemistry; *Rearrangements, Eliminations, Displacements and Condensations*; 3 years; \$20,100.

- DUQUESNE UNIVERSITY, Pittsburgh, Pa.; Kurt C. Schreiber, Department of Chemistry; *Nucleophilic Substitution in the Naphthalene System*; 3 years; \$10,500.
- FLORIDA STATE UNIVERSITY, Tallahassee, Fla.; Ernest Grunwald, Department of Chemistry; *Ion Solvation and Ion Association in Various Solvents*; 3 years; \$25,800.
- FLORIDA STATE UNIVERSITY, Tallahassee, Fla.; Werner Herz, Department of Chemistry; *The Toxic Constituents of Lantana Species*; 2 years; \$13,600.
- UNIVERSITY OF FLORIDA, Gainesville, Fla.; J. H. Simons and E. E. Muschlitz, Jr., Department of Chemistry; *Molecular Collisions at Low Pressures*; 2 years; \$15,400.
- HARVARD UNIVERSITY, Cambridge, Mass.; Paul D. Bartlett, Department of Chemistry; *Mechanisms of Organic Reactions*; 3 years; \$30,500.
- HARVARD UNIVERSITY, Cambridge, Mass.; G. B. Kistiakowsky, Department of Chemistry; *Unstable Intermediates in Gas Reactions*; 2 years; \$25,400.
- HARVARD UNIVERSITY, Cambridge, Mass.; William Moffitt, Department of Chemistry; *Molecular Properties in Quantum Theory*; 3 years; \$19,000.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; John C. Bailar, Jr., Department of Chemistry; *Metal Complexes in the Resolution of Optically Active Organic Substances*; 2 years; \$13,000.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; Elias J. Corey, Department of Chemistry; *Alpha- and Beta-Amyrin Triterpenes*; 1 Year; \$6,200.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; B. Roger Ray, Department of Chemistry; *Transference Numbers of Salts in Non-Aqueous Solvents*; 6 months; \$3,400.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; F. T. Wall, Department of Chemistry; *Dimensions of Coiling Type Polymer Molecules*; 3 years; \$24,300.
- INDIANA UNIVERSITY, Bloomington, Ind.; Walter J. Moore, Department of Chemistry; *Chemical Reactions of Ionic Beams*; 2 years; \$16,700.
- INDIANA UNIVERSITY, Bloomington, Ind.; V. J. Shiner, Jr., Department of Chemistry; *Effect of Deuterium Substitution on the Rates of Organic Reactions*; 2 years; \$10,800.
- IOWA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS, Ames, Iowa; George S. Hammond, Department of Chemistry; *Primary Products of Thermal Decomposition Reactions in Solution*; 2 years; \$12,900.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Alsoph H. Corwin, Department of Chemistry; *Synthetic Studies on Chlorophyll*; 2 years; \$13,900.
- UNIVERSITY OF KANSAS, Lawrence, Kans.; William E. McEwen, Department of Chemistry; *Relative Rates of Migration of Aryl Groups in the Schmidt Reaction*; 2 years; \$6,900.
- LAFAYETTE COLLEGE, Easton, Pa.; Joseph A. Dixon, Department of Chemistry; *Preparation and Study of n-Hexane-d14 and 2,2,4-Trimethylpentane-d18*; 1 year; \$5,000.
- LOYOLA UNIVERSITY, Chicago, Ill.; John L. Houston, Department of Chemistry; *Isotopic Exchange Reactions in Non-Aqueous Ionizing Solvents*; 2 years; \$8,500.
- LOYOLA UNIVERSITY, New Orleans, La.; H. R. Jolley, Department of Chemistry; *Chromatographic Separation of Racemic Mixtures*; 1 year; \$5,000.
- UNIVERSITY OF MAINE, Orono, Maine; Robert Dunlap, Department of Chemistry; *Liquid-Vapor Equilibrium for Binary Solutions of Fluorocarbons and Hydrocarbons and Volume Changes on Mixing*; 2 years; \$9,500.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; Arthur C. Cope, Department of Chemistry; *Transannular Reactions of Cyclic Olefins and Related Reactions of Open-Chain Olefins*; 3 years; \$19,000.
- MELLON INSTITUTE OF INDUSTRIAL RESEARCH, Pittsburgh, Pa.; Foil A. Miller, Department of Research in Chemical Physics; *Relative Energies of Polar and Equatorial Derivatives of Cyclohexane*; 2 years; \$6,200.

- JAMES MILLIKIN UNIVERSITY, Decatur, Ill.; Carl Weatherbee, Department of Chemistry; *Mannich Type Reactions*; 1 year; \$1,600.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; I. M. Kolthoff, Department of Chemistry; *The Convection Mercury Electrode in the Electrolysis of Inorganic and Organic Compounds*; 1 year; \$7,000.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; Robert Livingston, Department of Chemistry; *Flash Photolysis Studies of Labile Intermediates*; 3 years; \$23,100.
- UNIVERSITY OF NEBRASKA, Lincoln, Nebr.; H. E. Baumgarten, Department of Chemistry; *Chemistry of Simple Heterocyclic Systems*; 2 years; \$12,400.
- UNIVERSITY OF NEBRASKA, Lincoln, Nebr.; Norman H. Cromwell, Department of Chemistry; *Stereochemistry and Hyperconjugation of Three-Ring Compounds*; 2 years; \$15,000.
- STATE UNIVERSITY OF NEW YORK, Albany, N. Y.; Michael Szwarc, Department of Chemistry, College of Forestry, Syracuse, N. Y.; *Chemistry of Free Radicals*; 3 years; \$45,000.
- UNIVERSITY OF NORTH DAKOTA, Grand Forks, N. Dak.; Roland G. Severson, Department of Chemistry; *Heterocyclic Derivatives of Silicon*; 1 year; \$3,500.
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; Malcolm Dole, Department of Chemistry; *Stable Isotopes of Oxygen*; 2 years; \$21,800.
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; Arthur A. Frost, Department of Chemistry; *Molecular Potential Energies*; 2 years; \$10,000.
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; Ralph G. Pearson, Department of Chemistry; *A Relaxation Method for Fast Reactions*; 2 years; \$11,000.
- OHIO STATE UNIVERSITY, Columbus, Ohio; Melvin S. Newman, Department of Chemistry; *Synthesis of Highly Strained Hydrocarbons*; 2 years; \$11,700.
- OREGON STATE COLLEGE, Corvallis, Oreg.; W. H. Slabaugh, Department of Chemistry; *Preparation and Reactions of Graphite Oxide*; 3 years; \$9,000.
- PENNSYLVANIA STATE UNIVERSITY, University Park, Pa.; J. G. Aston, Julian Eisenstein, and J. J. Fritz, Department of Physics; *Paramagnetism in Crystalline Salts and in Free Radicals*; 2 Years; \$20,500.
- UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; John G. Miller, Department of Chemistry; *Compressibility of Gaseous Mixtures*; 2 years; \$21,500.
- UNIVERSITY OF PITTSBURGH, Pittsburgh, Pa.; Jerome L. Rosenberg, Department of Chemistry; *Chemiluminescence of Photosensitizing Organic Dyes in Condensed Systems*; 3 years; \$10,700.
- UNIVERSITY OF PITTSBURGH, Pittsburgh, Pa.; W. E. Wallace and R. S. Craig, Department of Chemistry; *Electronic Specific Heats and the Metallic Bond in Alloys*; 2 years; \$22,000.
- POLYTECHNIC INSTITUTE OF BROOKLYN, Brooklyn, N. Y.; C. G. Overberger, Department of Chemistry; *Free Radicals Derived from Azo Compounds*; 3 years; \$22,700.
- UNIVERSITY OF PITTSBURGH, Pittsburgh, Pa.; Henry S. Frank and Leo S. Mason, Department of Chemistry; *Relation of Structures to Properties in Liquid Solutions*; 2 years; \$20,900.
- PRINCETON UNIVERSITY, Princeton, N. J.; Edward C. Taylor, Jr., Department of Chemistry; *Pyridinopyrimidines*; 1 year; \$3,000.
- PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; Robert A. Benkeser, Department of Chemistry; *Organic Compounds of Silicon, Germanium and Tin*; 2 years; \$12,900.
- PURDUE UNIVERSITY, Lafayette, Ind.; Herbert C. Brown, Department of Chemistry; *Effect of Molecular Shape on Chemical Behavior*; 2 years; \$17,000.
- REED COLLEGE, Portland, Oreg.; Marshall W. Cronyn, Department of Chemistry; *Chemistry of Thiolacids and Thioesters*; 2 years; \$5,700.

- RENSSELAER POLYTECHNIC INSTITUTE, Troy, N. Y.; George J. Janz, Department of Chemistry; *Reactions of Cyanogen with Unsaturated Organic Compounds at Moderately High Temperatures*; 2 years; \$13,800.
- RIPON COLLEGE, Ripon, Wis.; Dwight F. Mowery, Jr., Department of Chemistry; *Isomer Distribution in Fisher Glycoside Formation*; 2 years; \$3,500.
- UNIVERSITY OF ROCHESTER, Rochester, N. Y.; Winston D. Walters, Department of Chemistry; *Kinetics and Mechanism of Thermal Reactions*; 3 years; \$16,000.
- SAN DIEGO STATE COLLEGE, San Diego, Calif.; Robert W. Isensee and Harold Walba, Department of Chemistry; *Acid-Base Equilibria in Aqueous Solutions of Aromatic Cyclic Amidines*; 1 year; \$4,200.
- SMITH COLLEGE, Northampton, Mass.; Milton D. Soffer, Department of Chemistry; *Synthetic and Structural Investigations in the Sesquiterpene Series*; 2 years; \$9,000.
- UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, Calif.; Arthur W. Adamson, Department of Chemistry; *Kinetics of Ligand Exchange with Complex Ions in Non-Aqueous Media*; 1 year; \$5,000.
- UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, Calif.; Ronald F. Brown, Department of Chemistry; *Ring Closure of Substituted Open Chain Compounds*; 2 years; \$7,000.
- TEXAS SOUTHERN UNIVERSITY, Houston, Tex.; Ray Floyd Wilson, Department of Chemistry; *Spectrographic and Polarographic Study of Certain Rare Earth and Transitional Elements*; 2 years; \$2,800.
- TULANE UNIVERSITY, New Orleans, La.; Joseph H. Boyer, Department of Chemistry; *Preparation and Properties of Aliphatic Diazo Compounds*; 2 years; \$6,600.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; Henry Eyring, Department of Chemistry; *Theory of Reaction Rates*; 2 years; \$22,800.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; W. J. Horton, Department of Chemistry; *Seven-Membered Ring Compounds*; 2 years; \$12,500.
- UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE, Burlington, Vt.; Richard G. Inskeep, Department of Chemistry; *Hydrogen Bond Association Energies*; 3 years; \$17,500.
- WASHINGTON AND LEE UNIVERSITY, Lexington, Va.; James K. Shillington, Department of Chemistry; *Resolution of Optically Active Compounds through the Carbonyl Group*; 2 years; \$6,000.
- STATE COLLEGE OF WASHINGTON, Pullman, Wash.; Gardner W. Stacy, Department of Chemistry; *Additions to Schiff Base Systems*; 2 years; \$8,000.
- UNIVERSITY OF WASHINGTON, Seattle, Wash.; David F. Eggers, Jr., Department of Chemistry; *Molecular Structure and Molecular Spectra*; 3 years; \$17,300.
- UNIVERSITY OF WASHINGTON, Seattle, Wash.; Kenneth B. Wiberg, Department of Chemistry; *Mechanisms of Oxidation Reactions*; 3 years; \$17,000.
- WAYNE UNIVERSITY, Detroit, Mich.; Carl Djerassi, Department of Chemistry; *Alpha-Amyrin Chemistry*; 2 years; \$16,000.
- WELLESLEY COLLEGE, Wellesley, Mass.; Margaret K. Seikel, Department of Chemistry; *Flavanoid Plant Pigments*; 3 years; \$8,200.
- WEST VIRGINIA UNIVERSITY, Morgantown, W. Va.; Chester W. Muth, Department of Chemistry; *Intramolecular Cyclization Involving a Nitro Group*; 2 years; \$7,500.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; Charles F. Curtiss, Department of Chemistry; *Theoretical Extensions of the Kinetic Theory of Gases*; 2 years; \$14,500.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; Eugene E. Van Tamelen, Department of Chemistry; *Synthesis of Alkaloids*; 2 years; \$9,000.

### *Developmental Biology*

- BROWN UNIVERSITY, Providence, R. I.; Paul B. Weisz, Department of Biology; *Morphogenesis and Growth in Stentor, Rana, and Mus*; 1 year; \$5,000.

- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Curt Stern, Department of Zoology; *Structure and Function of the Posterior Processes of the Brain Nephthys*; 1 year; \$6,900.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; Thomas Park, Department of Zoology; *The Effort of Irradiation on Laboratory Populations*; 1 year; \$3,800.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; Sherwood L. Washburn, Department of Anthropology; *Comparative and Experimental Analysis of Skull Form*; 1 year; \$7,500.
- DUKE UNIVERSITY, Durham, N. C.; C. G. Bookhout, Director, Duke University Marine Laboratory; *Reproduction, Life Histories, and Metamorphosis of Shrimp*; 1 year; \$3,500.
- FORDHAM UNIVERSITY, New York, N. Y.; Charles A. Berger, Department of Biology; *Changes in Chromosome Number During Development*; 1 year; \$2,900.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; Norman D. Levine, Department of Veterinary Pathology and Hygiene; *Cultivation of Parasitic Nematodes*; 2 years; \$9,500.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Norman E. Kemp, Department of Zoology; *Utilization of Yolk in Amphibian Oogenesis*; 2 years; \$8,100.
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; Ray L. Watterson, Department of Biology; *Effect of Mitotic Inhibitors on Feather Patterns*; 2 years; \$8,000.
- UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; Wesley G. Hutchinson, Department of Botany; *L Forms in Proteus*; 2 years; \$11,200.
- UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; Charles E. Wilde, Jr., Department of Pathology, School of Dentistry; *Casual Relations between Particular Metabolites and Specific Cellular Differentiations*; 3 years; \$17,000.
- UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, Calif.; John B. Field and Herman M. Harvey, Department of Medicine and Psychology; *Effects of Psychological Stress on Tumor Development in Rats and Mice*; 1 year; \$10,500.
- ST. AMBROSE COLLEGE, Davenport, Iowa; William F. Lynch, Department of Biology; *Factors Affecting Metamorphosis of Bugula Larvae*; 1 year; \$500.
- UNIVERSITY OF TENNESSEE, Knoxville, Tenn.; Ronald C. Fraser, Department of Zoology; *Physiological and Biochemical Problems in Chick Embryogeny*; 2 years; \$3,500.
- TRINITY COLLEGE, Hartford, Conn.; James M. Van Stone, Department of Biology; *Nerve-Tissue Relationships in Anuran Hind Limb Regeneration*; 3 years; \$6,500.
- WABASH COLLEGE, Crawfordsville, Ind.; Louis E. DeLanney, Department of Biology; *Causative Factors in Development of the Amphibian Spleen*; 2 years; \$3,800.
- UNIVERSITY OF WASHINGTON, Seattle, Wash.; Richard J. Blandau, Department of Anatomy; *Periovarial Sac and Tubal Sac Fluids*; 3 years; \$21,000.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; H. W. Mossman, Department of Anatomy; *Uterine Vascular System*; 2 years; \$11,000.
- UNIVERSITY OF WYOMING, Laramie, Wyo.; Charles S. Thornton, Jackson Hole Biological Research Station; *Role of Nerves in Limb Regeneration*; 3 years; \$2,800.
- YALE UNIVERSITY, New Haven, Conn.; John Phillip Trinkaus, Osborn Zoological Laboratory; *Cell and Tissue Transformation*; 3 years; \$12,800.
- YESHIVA UNIVERSITY, New York, N. Y.; Richard N. Stearns, Department of Physiology, Albert Einstein College of Medicine; *Enzyme Synthesis in Dissociated Embryonic Cells*; 1 year; \$600.

### *Earth Sciences*

- UNIVERSITY OF ARIZONA, Tucson, Ariz.; Roscoe H. Braham, Jr., Institute of Atmospheric Physics; *Physical Properties of Clouds*; 2 years; \$50,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; R. E. Holzer, Institute of Geophysics; *Origin of Low Frequency Geomagnetic Fluctuation*; 1 year; \$9,400.

- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; George C. Kennedy, Institute of Geophysics; *Silicate Systems*; 2 years; \$15,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Francis J. Turner, Department of Geology; *Fabric of Experimentally Deformed Ionic Crystals and Rocks*; 2 years; \$13,100.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; Hans Ramberg, Department of Geology; *Thermodynamic Study of Minerals*; 3 years; \$27,000.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; Harold C. Urey, Institute for Nuclear Studies; *Isotopic Abundances Relating to Geochemical Research*; 1 year; \$21,400.
- COLUMBIA UNIVERSITY, New York, N. Y.; Maurice Ewing and Frank Press, Lamont Geological Observatory; *Experimental and Theoretical Study of Short Period Surface Waves*; 1 year; \$12,800.
- COLUMBIA UNIVERSITY, New York, N. Y.; J. Laurence Kulp, Department of Geology; *Carbon 14 Dating of Archeological and Anthropological Specimens*; 1 year; \$10,000.
- COLUMBIA UNIVERSITY, New York, N. Y.; Arie Poldervaart, Department of Geology; *Structure and Petrogenesis of Part of the Beartooth Mountains*; 1 year; \$6,000.
- DARTMOUTH COLLEGE, Hanover, N. H.; J. B. Lyons, Department of Geology; *Systematic Compositional Variation in Metamorphic Minerals*; 2 years; \$7,200.
- EARLHAM COLLEGE, Richmond, Ind.; Ansel M. Gooding, Department of Geology and Soil Science; *Pleistocene Terraces of the Upper Whitewater Drainage Basin*; 2 years; \$6,000.
- FRANKLIN AND MARSHALL COLLEGE, Lancaster, Pa.; Richard M. Foose, Department of Geology; *Structural Patterns Around the Perimeter of the Beartooth Block in Southwestern Montana*; 2 years; \$10,000.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; R. B. Montgomery, Department of Oceanography; *Analysis of Serial Oceanographic Observations*; 2 years; \$9,000.
- THE KENTUCKY RESEARCH FOUNDATION, Lexington, Ky.; William A. Seay, Department of Agronomy; *Effect of Exchangeable Calcium and Magnesium on the Fixation of Phosphorous by Clay Fractions of Soils*; 2 years; \$11,500.
- LEHIGH UNIVERSITY, Bethlehem, Pa.; H. R. Gault, Department of Geology; *Studies of Carbonate Rocks*; 2 years; \$6,800.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; William H. Dennen and Ely Mencher, Department of Geology and Geophysics; *Geochemical Investigations of Sedimentary Rocks*; 1 year; \$10,300.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; M. J. Buerger, Department of Geology and Geophysics; *Crystal Structures of Minerals*; 2 years; \$24,000.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; Frederick M. Swain, Department of Geology; *Stratigraphy of Bituminous Deposits*; 2 years; \$15,000.
- UNIVERSITY OF NORTH CAROLINA, Chapel Hill, N. C.; Stanley B. McCaleb, Department of Agronomy; *Studies of North Carolina Soils*; 2 years; \$9,400.
- UNIVERSITY OF NOTRE DAME, Notre Dame, Ind.; Raymond C. Gutschick, Department of Geology; *The Mississippian Sedimentary Basin in Northern Arizona*; 2 years; \$1,500.
- OBERLIN COLLEGE, Oberlin, Ohio; Kathryn H. Clisby and Fred Foreman, Department of Geology and Geography; *Pleistocene Stratigraphy and Chronology*; 2 years; \$22,000.
- PALEONTOLOGICAL RESEARCH FOUNDATION, Ithaca, N. Y.; Katherine V. W. Palmer, Paleontological Research Institute; *Molluscan Fauna of the Ocala Limestone (Upper Eocene) of Westcentral Florida*; 2 years; \$11,900.
- PENNSYLVANIA STATE UNIVERSITY, State College, Pa.; G. W. Brindley, School of Mineral Industries; *The Structural Mineralogy of the Serpentine Group of Minerals*; 1 year; \$10,000.

- PENNSYLVANIA STATE UNIVERSITY, State College, Pa.; Charles L. Hosler, College of Mineral Industries; *Aggregation of Ice Crystals to Form Snow*; 2 years; \$10,000. ✓
- PENNSYLVANIA STATE UNIVERSITY, State College, Pa.; Rustrum Roy, Department of Earth Sciences; *The Phase Rule and Polymorphism*; 3 years; \$30,000.
- PRINCETON UNIVERSITY, Princeton, N. J.; W. T. Thom, Jr., Department of Geological Engineering; *Crustal Deformation in Portions of the Great Plains and Cordilleran Regions*; 2 years; \$14,000.
- SAINT LOUIS UNIVERSITY, St. Louis, Mo.; Ross R. Heinrich, Department of Geophysics and Geophysical Engineering; *Atmospheric Micro-Oscillations and Short-Period Microseisms*; 3 years; \$36,000. ✓
- TEXAS A. & M. RESEARCH FOUNDATION, College Station, Tex.; Donald W. Wood, Department of Oceanography; *Calcium Carbonate Solubility Equilibrium in Sea Water*; 3 years; \$20,000.
- U. S. COAST AND GEODETIC SURVEY, Washington 25, D. C.; Dean S. Carder, Seismology Branch; *Seismology: Travel-Time Studies and Development of Improved Travel-Time Curves for Pacific Ocean Region*; 2 years; \$15,000.
- YALE UNIVERSITY, New Haven, Conn.; Chester R. Longwell, Department of Geology; *Tectonic History of the Region Around Lake Mead, Nevada-Arizona*; 1 year; \$3,500.

### *Engineering Sciences*

- UNIVERSITY OF ALABAMA, University, Ala.; W. D. Jordan, Department of Engineering Mechanics; *Inelastic Behavior of Eccentrically Loaded Columns of Strain-Hardening Materials*; 2 years; \$11,000.
- BUREAU OF RECLAMATION, Department of the Interior, Washington, D. C.; Richard C. Mielenz, Design and Construction Division, Denver, Colo.; *Hydration of Portland Pozzolan Cement*; 1 year; \$10,000.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; C. B. Milikan and H. W. Liepmann, Department of Aeronautics; *Stability of Fluid Flow*; 2 years; \$23,000.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Vito A. Vanoni, Division of Engineering; *Mechanics of Sub-Aqueous Dunes*; 1 year; \$12,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; A. M. Hopkin, Department of Electrical Engineering; *Nonlinear Control Systems*; 3 years; \$29,900.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; A. D. K. Laird, Department of Mechanical Engineering; *Movement of Gas over Waves*; 2 years; \$17,500.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; S. F. Ravitz and E. R. Parker, Department of Metallurgy; *Slag-Metal Interactions During Arc Welding*; 2 years; \$21,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; E. G. Thomsen, Department of Mechanical Engineering; *Mechanics of Plastic Deformation of Metals*; 2 years; \$12,000.
- CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh, Pa.; H. W. Paxton, Department of Metallurgical Engineering; *Interdependence of Thermodynamics and Kinetics in Reactions in Solids*; 2 years; \$20,000.
- CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh, Pa.; Herbert L. Toor, Department of Chemical Engineering; *Transfer of Matter Across Gas-Liquid Interfaces*; 2 years; \$13,500.
- COLUMBIA UNIVERSITY, New York, N. Y.; Ernest J. Henley, Department of Chemical Engineering; *Ionization Patterns in Condensed Systems*; 18 months; \$7,000.
- CORNELL UNIVERSITY, Ithaca, N. Y.; H. G. Booker and B. Nichols, Department of Electrical Engineering; *Cause of Motion in the Aurora*; 2 years; \$13,300. ✓
- UNIVERSITY OF DETROIT, Detroit, Mich.; Leon S. Kowalczyk, Department of Chemical Engineering; *Thermal Conductivity of Mesomorphic Liquids*; 1 year; \$3,500.



- DUKE UNIVERSITY, Durham, N. C.; C. D. Fulton, Jr., Department of Mechanical Engineering; *Heat Switches and Cyclic Magnetic Cooling*; 2 years; \$19,000.
- UNIVERSITY OF FLORIDA, Gainesville, Fla.; William A. Nash, Department of Engineering Mechanics; *Analysis of Buckling Phenomena*; 1 year; \$7,900.
- UNIVERSITY OF FLORIDA, Gainesville, Fla.; F. E. Richart, Jr., Department of Civil Engineering; *Stress Transfer in Granular Elastic Media*; 2 years; \$12,600.
- GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, Ga.; M. R. Carstens, School of Civil Engineering; *Unsteady Flow in Smooth Pipes*; 2 years; \$13,800.
- GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, Ga.; Robert S. Ingols, Engineering Experiment Station; *Protein Changes with Chlorine*; 1 year; \$7,100.
- UNIVERSITY OF HOUSTON, Houston, Tex.; A. E. Dukler, Department of Chemical Engineering; *Entrainment in Two Phase, Gas-Liquid Flow*; 2 years; \$13,900.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; M. E. Clark & O. M. Sidebottom, Department of Theoretical and Applied Mechanics; *Inelastic Behavior of Columns*; 1 year; \$8,600.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; Clyde E. Kesler, Department of Theoretical and Applied Mechanics; *Fatigue of Concrete*; 2 years; \$20,000.
- STATE UNIVERSITY OF IOWA, Iowa City, Iowa; Karl Kammermeyer, Department of Chemical Engineering; *Electrical Conductivity of Thin Conductive Films on Non-Metallic Surfaces*; 1 year; \$7,500.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Stanley Corrsin, Department of Aeronautics, School of Engineering; *Dispersion of Solid Spheres in Isotropic Turbulence*; 2 years; \$16,500.
- KANSAS STATE COLLEGE, Manhattan, Kans.; Raymond C. Hall, Department of Chemical Engineering; *Effect of Sonic Vibration on the Rates of Mass Transfer*; 2 years; \$12,000.
- UNIVERSITY OF MAINE, Orono, Maine; Hamilton Gray, Department of Civil Engineering; *Moisture Content and Density of Granular Soils*; 3 years; \$7,900.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; P. L. de Bruyn, Department of Metallurgy; *Three-Phase Flotation Systems*; 2 years; \$20,000.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; Rolf Eliassen, Department of Civil and Sanitary Engineering; *Mechanism of Corrosion Inhibition by Sodium Metaphosphate and Other Chemicals*; 2 years; \$14,000.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; Warren M. Rohsenow, Department of Mechanical Engineering; *Effect of Surface Conditions on Nucleate Boiling*; 18 months; \$10,500.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; Thomas K. Sherwood, Department of Chemical Engineering; *Mechanism of Mass Transfer with Chemical Reaction*; 1 year; \$2,900.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; John G. Trump, Department of Electrical Engineering; *Fundamental Processes in High Voltage Discharges in Vacuum*; 2 years; \$18,700.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Stuart W. Churchill, Department of Chemical Engineering; *Chemical Reaction Rates for Gases Passing Through Shock Waves*; 2 years; \$13,200.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Cedomir M. Sliepcevic, Department of Chemical and Metallurgical Engineering; *Light Scattering Properties of Aerosols*; 1 year; \$5,100.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; Arthur J. Madden, Jr., Department of Chemical Engineering; *Rates of Mass and Heat Transfer to Gases in Free Convection*; 2 years; \$13,600.
- UNIVERSITY OF MISSISSIPPI, University, Miss.; F. H. Kellogg, Department of Civil Engineering; *Drainage of Sands under Artesian Conditions*; 2 years; \$7,000.

- NEW YORK UNIVERSITY, New York, N. Y.; John Happel, Department of Chemical Engineering; *Fluid-Solid Dynamics in Bounded Media*; 18 months; \$9,200.
- NEW YORK UNIVERSITY, New York, N. Y.; Maria Telkes, Research Division; *Solar Energy Collectors*; 1 year; \$7,000.
- NORTH CAROLINA STATE COLLEGE, Raleigh, N. C.; Nelson L. Nemerow, Department of Civil Engineering; *Mechanism of Biochemical Oxidation of Organic Matter*; 1 year; \$7,000.
- UNIVERSITY OF NORTH CAROLINA, Chapel Hill, N. C.; Marvin L. Granstrom, Department of Sanitary Engineering; *Kinetics and Mechanism of Reactions Involving Chlorine Dioxide*; 2 years; \$11,000.
- UNIVERSITY OF NORTH CAROLINA, Chapel Hill, N. C.; Hans H. Stadelmaier, Department of Engineering Research; *Disorder-Order Transformation in Fe Ni<sub>3</sub> and the Permalloy Problem*; 1 year; \$4,000.
- UNIVERSITY OF NORTH DAKOTA, Grand Forks, N. Dak.; Donald E. Severson, Department of Chemical Engineering; *Mass Transfer Rates under Forced Convection*; 2 years; \$5,400.
- UNIVERSITY OF NOTRE DAME, Notre Dame, Ind.; Murlin T. Howerton, Department of Chemical Engineering; *Catalytic Polymerization of Isobutene*; 2 years; \$10,900.
- OHIO STATE UNIVERSITY, Columbus, Ohio; John D. Kraus, Department of Electrical Engineering; *Radio Mapping and Design of a Prototype Telescope*; 1 year; \$23,000.
- PENNSYLVANIA STATE UNIVERSITY, State College, Pa.; J. Norton Brennan, Department of Engineering Mechanics; *Solid State Structures in Single Crystal Metals*; 3 years; \$20,000.
- PENNSYLVANIA STATE UNIVERSITY, University Park, Pa.; P. Mange, Department of Engineering Research; *Physical Structure of the High Atmosphere*; 2 years; \$7,400.
- PENNSYLVANIA STATE UNIVERSITY, State College, Pa.; William E. Ranz, Department of Engineering Research; *Disintegration and Dispersion of a Liquid into Droplets*; 18 months; \$6,300.
- PENNSYLVANIA STATE UNIVERSITY, State College, Pa.; A. H. Waynick, Department of Electrical Engineering; *Ionosphere Observations by Long Wave Radio Methods*; 1 year; \$10,000.
- POLYTECHNIC INSTITUTE OF BROOKLYN, Brooklyn, N. Y.; Ernst Weber, Director, Microwave Research Institute; *Electromagnetic Networks and Information-Handling Circuits*; 1 year; \$10,000.
- PRINCETON UNIVERSITY, Princeton, N. J.; A. E. Sorenson, Department of Mechanical Engineering, V. Olgyay and A. Olgyay, Department of Architecture; *Thermal Behavior of Buildings Through Model Structures*; 2 years; \$19,100.
- PURDUE RESEARCH FOUNDATION, Fafayette, Ind.; R. Schuhman, Jr., Department of Metallurgical Engineering; *Thermodynamic Properties of Titanium Alloys*; 2 years; \$17,000.
- PURDUE UNIVERSITY, Lafayette, Ind.; J. R. Burnett, Department of Electrical Engineering; *Nonlinear Servomechanisms*; 1 year; \$10,000.
- RENSSELAER POLYTECHNIC INSTITUTE, Troy, N. Y.; Joel O. Hougen, Department of Chemical Engineering; *Process Dynamics and Control*; 3 months; \$1,700.
- ROSE POLYTECHNIC INSTITUTE, Terre Haute, Ind.; S. G. Bankoff, Department of Chemical Engineering; *Equilibrium Bubble Contact Angles as Related to Pool Boiling Heat Transfer*; 18 months; \$7,600.
- RUTGERS UNIVERSITY, New Brunswick, N. J.; Rudolf K. Bernhard, Department of Engineering Mechanics; *Dynamic Soil Characteristics: Response Curves and Critical Frequencies*; 2 years; \$16,000.
- STANFORD UNIVERSITY, Stanford, Calif.; James M. Gere, Department of Civil Engineering; *Coupled Vibrations of Thin Walled Bars of Open Cross Section*; 1 year; \$4,300.

- STANFORD UNIVERSITY, Stanford, Calif.; Karl Klotter, Department of Mechanical Engineering; *Non-Linear Oscillations*; 1 year; \$9,000.
- STANFORD UNIVERSITY, Stanford, Calif.; C. W. Richards, Department of Civil Engineering; *Effect of Specimen Size and Stress Distribution on Yielding in Mild Steel*; 1 year; \$6,700.
- SWARTHMORE COLLEGE, Swarthmore, Pa.; Carl Barus, Department of Electrical Engineering; *Electronic Instrumentation for Neurophysiology*; 1 year; \$7,300.
- UNIVERSITY OF TEXAS, Austin, Tex.; Matthew Van Winkle, Department of Chemical Engineering; *Viscosity and Surface Tension of Homogeneous Liquid Mixtures at Their Boiling Points*; 2 years; \$10,000.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; E. B. Christiansen and N. W. Ryan, Department of Chemical Engineering; *Non-Isothermal Flow of and Heat Transfer to Non-Newtonian Fluids*; 2 years; \$7,400.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; S. S. Kistler and E. B. Christiansen, Department of Chemical Engineering; *High Temperature Glass*; 1 year; \$5,100.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; N. W. Ryan, Department of Chemical Engineering; *Turbulent Flow of Non-Newtonian Fluids*; 1 year; \$3,300.
- VIRGINIA POLYTECHNIC INSTITUTE, Blacksburg, Va.; Michael V. Nevitt, Department of Metallurgy; *Sigma Phase in the Ternary Systems Cr-Co-Cu and Cr-Mn-Cu*; 1 year; \$8,000.
- WASHINGTON UNIVERSITY, St. Louis, Mo.; Gustav Mesmer, Department of Applied Mechanics; *Stresses in Pin-Loaded Eye-Shaped Bars*; 1 year; \$5,900.
- WEST VIRGINIA UNIVERSITY, Morgantown, W. Va.; H. V. Fairbanks, Department of Chemical Engineering; *Effect of Ultrasonics Upon Dispersion Hardening of Metals*; 2 years; \$9,100.

### *Environmental Biology*

- THE AMERICAN MUSEUM OF NATURAL HISTORY, Central Park West at 79th Street, New York, N. Y.; C. M. Breder, Jr., Department of Fishes and Aquatic Biology; *Interaction of Endocrine System*; 1 year; \$6,800.
- BALDWIN-WALLACE COLLEGE, Berea, Ohio; E. Bennette Henson, Department of Biology; *Bottom Fauna of Northern Lake Huron*; 1 year; \$500.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Brian P. Boden, Scripps Institute of Oceanography, La Jolla, California; *Diurnal Vertical Migration of Sonic Scattering Layers in the Sea*; 1 year; \$1,200.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Carl L. Hubbs, Scripps Institution of Oceanography, La Jolla, California; *Ecological Conditions Associated with Eruptions of Human Populations*; 3 years; \$25,200.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Elmer R. Noble, Santa Barbara College, Santa Barbara, California; *Protozoan Parasites of Marine Fishes*; 1 year; \$4,500.
- CARLETON COLLEGE, Northfield, Minn.; J. Bruce Guyselmann, Department of Zoology; *Rhythms of Locomotor Activity in Crustaceans*; 1 year; \$3,400.
- DUKE UNIVERSITY, Durham, N. C.; Henry J. Oosting, Department of Botany; *Ecology of the Venus Fly-Trap (*Dionaea Muscipula*)*; 2 years; \$5,900.
- DUKE UNIVERSITY, Durham, N. C.; Paul J. Kramer, Department of Botany; *Physiological Processes of Forest Tree Species*; 3 years; \$18,900.
- UNIVERSITY OF FLORIDA, Gainesville, Fla.; Archie Carr, Department of Biology; *Ecology, Migration, and Population Levels of *Chelonia M. Mydas* in the Atlantic and Caribbean*; 3 years; \$18,000.
- INDIANA UNIVERSITY, Bloomington, Ind.; David G. Frey, Department of Zoology; *Ontogeny of North America and European Lakes*; 2 years; \$10,000.

- INDIANA UNIVERSITY, Bloomington, Ind.; Shelby D. Gerking, Department of Zoology; *Efficiency of Food Utilization by a Fish Population*; 2 years, \$10,000.
- STATE UNIVERSITY OF IOWA, Iowa City, Iowa; G. Edgar Folk, Jr., Department of Physiology; *Influence of Lowered Metabolism on Life Span of Rodents*; 2 years; \$8,000.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Dayton E. Carritt, Chesapeake Bay Institute, Annapolis, Md.; *Trace Metals in the Ecology of Chesapeake Bay*; 2 years; \$11,000.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; David C. Chandler, Department of Zoology; *Limnology of Northern Lake Huron*; 2 years; \$13,400.
- UNIVERSITY OF NEW HAMPSHIRE, Durham, N. H.; Emery Swan, Department of Zoology; *Environmental Effects on Growth Rate and Patterns in Sea Urchins*; 2 years; \$5,000.
- NORTH DAKOTA AGRICULTURAL COLLEGE, Fargo, N. Dak.; Gabriel W. Comita, Department of Zoology and Physiology; *Life Cycle Studies of a Calanoid Copepod*; 2 years; \$5,700.
- UNIVERSITY OF OREGON, Eugene, Oreg.; Bonita J. Miller, Department of Biology; *An Isolated Remnant of Forest in the Tillamook Burn Area*; 2 years; \$4,500.
- UNIVERSITY OF PITTSBURGH, Pittsburgh, Pa.; Richard T. Hartman, Department of Biological Sciences; *Antagonistic Effects between Algal Species*; 1 year; \$3,200.
- PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; Alton A. Lindsey, Department of Biological Sciences; *Plant Communities of Indiana Floodplains*; 3 years; \$9,300.
- QUINCY COLLEGE, Quincy, Ill.; Troy C. Dorris, Department of Biological Sciences; *Bottom Fauna in the Middle Mississippi River*; 2 years; \$4,400.
- ROCKY MOUNTAIN BIOLOGICAL LABORATORY, Crested Butte, Colo.; Colin S. Pittendrigh, Department of Biology, Princeton University; *Physiological and Behavioral Aspects of Adaptation in Related Insects*; 2 years; \$6,400.
- STANFORD UNIVERSITY, Stanford, Calif.; Donald P. Abbott and Rolf L. Bolin; Hopkins Marine Station; *Fluctuations in Populations of Marine Organisms Correlated with Fluctuations in Hydrographic Factors*; 1 year; \$8,400.
- STANFORD UNIVERSITY, Stanford, Calif.; W. C. Brown, Natural History Museum; *Herpetofaunas of the Philippines*; 1 year; \$2,300.
- WOODS HOLE OCEANOGRAPHIC INSTITUTION, Woods Hole, Mass.; George L. Clark, Marine Biologist; *Measurement of Light in the Sea and Photic Reactions of Aquatic Organisms*; 2 years; \$14,500.
- WOODS HOLE OCEANOGRAPHIC INSTITUTION, Woods Hole, Mass.; Bostwick H. Ketchum; *Nitrification in Sea Water*; 2 years; \$11,700.

### *Genetic Biology*

- ALLEGHENY COLLEGE, Meadville, Pa.; G. E. McClearn, Department of Psychology; *Genetic Influence on Exploratory Behavior of Mice*; 1 year; \$4,800.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Ray D. Owens, Department of Biology; *Serology of Tetrahymena*; 2 years; \$16,000.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Frits W. Went, Department of Biology; *Physiological Differences Among Races and Varieties of Higher Plants*; 3 years; \$30,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Carl Epling, Department of Botany; *Adaptive Mechanisms in Selected Wild Populations of Drosophila Pseudoobscura*; 3 years; \$20,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Taylor Hinton, Department of Zoology; *The Role of Genes in the Metabolism of Nucleic Acid and other Compounds*; 2 years; \$12,000.

- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Anton Lang and Sam G. Wildman, Department of Botany; *The Mode of Synthesis and Inheritance of Proteins in Plants*; 3 years; \$21,000.
- EMORY UNIVERSITY, Emory, Ga.; Charles Ray, Department of Biology; *Cytogenetic Studies of Tetrahymena Pyriformis*; 1 year; \$3,000.
- HARVARD UNIVERSITY, Cambridge, Mass.; John R. Raper, Department of Biology; *Genetics and Physiology of Tetrapolarity in the Higher Fungi*; 2 years; \$13,000.
- LONG ISLAND BIOLOGICAL ASSOCIATION, Cold Spring Harbor, N. Y.; M. Demerec, Director; *Equipment for Virus and Bacterial Genetics Research*; 3 years; \$15,000.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; David L. Nanney, Department of Zoology; *Studies of Protozoan Genetics*; 3 years; \$21,000.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; Joseph G. Gall, Department of Zoology; *Submicroscopic Morphology of the Animal Cell Nucleus*; 1 year; \$6,000.
- UNIVERSITY OF MISSOURI, Columbia, Mo.; E. R. Sears, A. C. Faberge and E. Novitski, Departments of Field Crops, Botany and Zoology; *Chromosome Structure and Behavior*; 2 years; \$28,500.
- REED COLLEGE, Portland, Oreg.; Richard W. Siegel, Department of Biology; *Duration of Immaturity in Paramecium Aurelia*; 3 years; \$9,000.
- THE ROCKY MOUNT BIOLOGICAL LABORATORY, Edinboro, Pa.; E. Novitski; *Chromosome Rearrangements of Phylogenetic Significance*; 2 years; \$6,500.
- SOUTH DAKOTA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS, College Station, S. Dak.; James G. Ross, Department of Agronomy; *Colchicine-Induced Homozygous Diploid Mutants in Sorghum*; 2 years; \$4,000.
- UNIVERSITY OF NOTRE DAME, Notre Dame, Ind.; Albert L. Delisle, Department of Biology; *Cytogenetical Studies on the Asters*; 2 years; \$5,000.
- UNION COLLEGE, Schenectady, N. Y.; Henry M. Butzel, Department of Biology, William B. Martin, Jr., Department of Chemistry; *Mating Type Development and Determination in Paramecium*; 2 years; \$8,000.
- WESTERN RESERVE UNIVERSITY, Cleveland, Ohio; Charles Yanofsky, Department of Microbiology; *Gene Action in Neurospora*; 2 years; \$13,000.
- YALE UNIVERSITY, New Haven, Conn.; Henry P. Treffers, Department of Microbiology; *Mechanisms of Gene Action and Drug Resistance*; 2 years; \$13,500.
- YALE UNIVERSITY, New Haven, Conn.; Haig P. Papazian, Department of Plant Science; *Genetic Studies on Incompatibility Factors in Coprinus*; 2 years; \$5,500.

### Mathematical Sciences

- AMERICAN MATHEMATICAL SOCIETY, Providence, R. I.; R. H. Bing, Chairman; *Study of Set Theoretic Topology*; summer of 1955; \$30,500.
- ANTIOCH COLLEGE, Yellow Springs, Ohio; Gustave Rabson, Department of Mathematics; *Fourier Series and Group Algebras*; 3 months; \$1,450.
- BROWN UNIVERSITY, Providence, R. I.; H. Federer and W. S. Massey, Department of Mathematics; *Topology and Measure Theory*; 30 months; \$36,500.
- CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh, Pa.; Alfred Schild, Department of Mathematics; *Relativistic Particle Mechanics*; 2 years; \$8,500.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Jerzy Neyman, Department of Mathematics; *The Distribution of Galaxies*; 2 years; \$21,800.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Alfred Tarski, Department of Mathematics; *Theory of Models*; 2 years; \$19,800.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; Saunders MacLane and S. S. Chern, Department of Mathematics; *Algebraic Topology*; 3 years; \$31,000.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; Andre Weil, Department of Mathematics; *Abelian Varieties and their Application*; 1 year; \$6,500.

- UNIVERSITY OF COLORADO, Boulder, Colo.; Sarvadaman Chowla, Department of Mathematics; *The Extended Riemann Hypothesis*; 1 year; \$9,000.
- COLUMBIA UNIVERSITY, New York, N. Y.; Walter Strod, Department of Mathematics; *Principal Solutions of Differential Equations*; 6 months; \$2,650.
- UNIVERSITY OF CONNECTICUT, Storrs, Conn.; Richard D. Schafer, Department of Mathematics; *Non-Associative Algebras*; 2 years; \$10,000.
- DARTMOUTH COLLEGE, Hanover, N. H.; J. G. Kemeny, Department of Mathematics; *Mathematical Methods in the Behavioral Sciences*; 1 year; \$10,000.
- UNIVERSITY OF DELAWARE, Newark, Del.; John H. Barrett, Department of Mathematics; *Solutions of Differential Equations in the Neighborhood of Infinity*; 2 years; \$6,000.
- UNIVERSITY OF GEORGIA, Athens, Ga.; M. K. Fort, Jr., Department of Mathematics; *Functional Equations*; 1 year; \$6,500.
- HARVARD UNIVERSITY, Cambridge, Mass.; Richard Brauer, Department of Mathematics; *The Structure of Groups of Finite Order*; 1 year; \$3,800.
- HARVARD UNIVERSITY, Cambridge, Mass.; Oscar Zariski, Department of Mathematics; *Local Uniformization on Algebraic Varieties over Modular Ground Fields*; 1 year; \$5,900.
- ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago, Ill.; Gerald Berman, Department of Mathematics; *Finite Projective Geometries*; 1 year; \$6,100.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; Chung-Tao Yang, Department of Mathematics; *Mappings from Spheres to Euclidean Spaces*; 1 year; \$6,200.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; A. H. Taub, Department of Mathematics; *Analytical Program for Digital Computer*; 1 year; \$14,500.
- INSTITUTE FOR ADVANCED STUDY, Princeton, N. J.; Leon Ehrenpreis; *The Theory of Distributions*; 2 years; \$11,900.
- THE INSTITUTE OF MATHEMATICAL STATISTICS, University of California, Berkeley, Calif.; David Blackwell, President-Elect; *Statistical Inference in Stochastic Processes*; 6 Weeks; \$7,700.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Wei-Liang Chow, School of Mathematics; *Abelian Varieties over Abstract Fields*; 1 year; \$5,400.
- UNIVERSITY OF KANSAS, Lawrence, Kans.; G. Baley Price, Department of Mathematics; *Geometry of Function Space*; 1 year; \$19,000.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; E. E. Moise, Department of Mathematics; *Topology of Manifolds*; 30 months; \$13,600.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Maxwell O. Reade, Department of Mathematics; *Subharmonic, Harmonic and Analytic Functions*; 2 years; \$12,600.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Charles J. Titus, Department of Mathematics; *Linear Vector Spaces of Elliptic Mappings*; 1 year; \$5,000.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Leonard Tornheim, Department of Mathematics; *Geometry of Numbers*; 1 year; \$6,000.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; Hidehiko Yamabe, Department of Mathematics; *Structure of Manifolds*; 2 years; \$11,100.
- MORGAN STATE COLLEGE, Baltimore, Md.; Luna I. Mishoe, Department of Mathematics; *Eigen-Function Series for a Non-Self Adjoint System*; 1 year; \$4,600.
- UNIVERSITY OF NEW HAMPSHIRE, Durham, N. H.; Henry G. Rice, Department of Mathematics; *Recursion Theory*; 2 years; \$8,700.
- NEW YORK UNIVERSITY, New York, N. Y.; Avron Douglass; *Hadamard's Conjecture and Related Problems in the Theory of Wave Propagation*; 1 year; \$7,500.
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; D. Zelinsky and A. Rosenberg, Department of Mathematics; *Galois Theory of Rings*; 1 year; \$11,000.
- UNIVERSITY OF NOTRE DAME, Notre Dame, Ind.; Paul Erdos, Department of Mathematics; *Probability and Related Problems*; 1 year; \$10,000.

- OBERLIN COLLEGE, Oberlin, Ohio; John D. Baum, Department of Mathematics; *Topological Dynamics*; 1 year; \$3,600.
- OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE, Stillwater, Okla.; Edwin W. Titt, Department of Mathematics; *A New Approach to Partial Differential Equations*; 2 years; \$26,000.
- UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; R. D. Anderson, Department of Mathematics; *Higher Dimensional Manifolds*; 3 years; \$23,700.
- PURDUE UNIVERSITY, Lafayette, Ind.; Leonard Gillman, Melvin Henriksen and Myer Jerison, Department of Mathematics; *Function Space Algebras*; 2 years; \$21,700.
- SMITH COLLEGE, Northampton, Mass.; Richard E. Johnson, Department of Mathematics; *Rings With Atomic Algebras of Ideals*; 1 year; \$3,700.
- UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, Calif.; Herbert Busemann, Department of Mathematics; *Geometry With Non-Symmetric Distances*; 2 years; \$6,600.
- SYRACUSE UNIVERSITY, Syracuse, N. Y.; Albert Edrei, Department of Mathematics; *Zeros of the Derivatives of Analytic Functions*; 1 year; \$7,000.
- UNIVERSITY OF TENNESSEE, Knoxville, Tenn.; Wallace Givens, Department of Mathematics; *Continuous Geometry*; 18 months; \$13,300.
- UNIVERSITY OF TEXAS, Austin, Tex.; H. S. Vandiver, Department of Mathematics; *Class Fields and Fermat's Last Theorem*; 1 year; \$10,600.
- UNIVERSITY OF VIRGINIA, Charlottesville, Va.; G. T. Whyburn and E. J. McShane, School of Mathematics; *Topological Methods in Analysis*; 3 years; \$34,400.
- WAYNE UNIVERSITY, Detroit, Mich.; George Lorentz, Department of Mathematics; *Summability Methods and Function Spaces*; 1 year; \$8,900.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; R. H. Bing, Department of Mathematics; *Imbedding Sets in Manifolds*; 2 years; \$17,000.
- YALE UNIVERSITY, New Haven, Conn.; Nathan Jacobson, Department of Mathematics; *Jordan Algebras*; 1 year; \$8,800.

### *Molecular Biology*

- BOSTON DISPENSARY, Boston, Mass.; Gerhart Schmidt, Thannhauser Laboratory; *Biosynthesis of Proteins and Nucleic Acids in Yeast*; 3 years; \$16,500.
- BOSTON UNIVERSITY, Boston 15, Mass.; William G. Boyd, Department of Biochemistry; *Antibody-Antigen Reactions and Antibody Specificity*; 3 years; \$20,000.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Henry Borsook and Richard S. Sweet, Division of Biology; *Metabolism of Lysine*; 2 years; \$9,000.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Robert B. Corey, Department of Chemistry; *X-Ray Diffraction Studies of Crystalline Proteins*; 3 years; \$36,000.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; M. Delbruck, Division of Biology; *Phototropic Responses of Sporangiohores*; 2 years; \$15,000.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; H. K. Mitchell, Division of Biology; *The Biosynthesis of Pterins and Flavins*; 2 years; \$9,000.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Linus Pauling, Department of Chemistry; *Configurations of Polypeptide Chains in Proteins*; 3 years; \$30,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Daniel E. Atkinson, Department of Chemistry; *Autotrophism in Hydrogenomonas*; 3 years; \$14,500.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Arthur L. Black, School of Veterinary Medicine, Davis, Calif.; *Biosynthesis of Amino Acids in Dairy Cows from Carbon-14 Labeled Precursors*; 2 years; \$14,500.

- UNIVERSITY OF CHICAGO, Chicago, Ill.; Birgit Vennesland, Department of Biochemistry; *Enzyme Reaction Mechanism*; 3 years; \$24,000.
- COLUMBIA UNIVERSITY, New York, N. Y.; Elvin A. Kabat, Department of Neurology; *Immunochemical Studies on Polysaccharides*; 3 years; \$60,000.
- COLUMBIA UNIVERSITY, New York, N. Y.; Seymour Lieberman, Department of Obstetrics and Gynecology; *Steroid Hormone Biosynthesis by Perfused Human Placenta*; 3 years; \$25,000.
- DUKE UNIVERSITY, Durham, N. C.; George W. Schwert, Department of Biochemistry; *Properties of Chymotrypsinogen and of Chymotrypsin*; 3 years; \$19,000.
- FLORIDA STATE UNIVERSITY, Tallahassee, Fla.; Earl Frieden, Department of Chemistry; *The Properties of Ascorbic Acid Oxidase*; 2 years; \$7,400.
- HARVARD UNIVERSITY, Cambridge, Mass.; Wonrad Bloch, Department of Biochemistry; *Enzymatic Synthesis of Glutathione*; 3 years; \$20,000.
- HARVARD UNIVERSITY, Cambridge, Mass.; Barbara W. Low, University Laboratory of Physical Chemistry; *X-Ray Crystal Structure of Proteins and Peptides*; 18 months; \$10,000.
- HARVARD UNIVERSITY, Cambridge, Mass.; Barbara W. Low, Department of Biophysical Chemistry; *X-Ray Crystal Structure Studies of Proteins and Peptides—A Study of the Insulin Structure*; 1 year; \$10,000.
- HARVARD UNIVERSITY, Cambridge, Mass.; J. M. Watson, Department of Biology; *Structure and Ribonucleic Acid Component of Tobacco Mosaic Virus*; 1 year; \$8,000.
- HARVARD UNIVERSITY, Cambridge, Mass.; F. H. Westheimer, Department of Chemistry; *Chemical Models for Enzyme Systems*; 3 years; \$24,000.
- HAVERFORD COLLEGE, Haverford, Pa.; Ariel G. Loewy, Department of Biology; *Cytoplasmic Proteins*; 2 years; \$10,000.
- HUNTER COLLEGE, New York, N. Y.; H. W. Hoyer, Department of Chemistry; *Electrophoretic Mobility of Micelles*; 1 year; \$4,000.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; Elliot Juni, Department of Bacteriology; *Mode of Action of Diphosphothiamine in Carbohydrate Metabolism*; 2 years; \$11,000.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; Joseph Larner, Department of Chemistry; *Carbohydrate Absorption; Synthesis and Degradation of Polysaccharides*; 3 years; \$16,000.
- IOWA STATE COLLEGE OF AGRICULTURE, AND MECHANICAL ARTS, Ames, Iowa; S. Aronoff, Department of Botany; *Biosynthesis of Chlorophyll*; 3 years; \$12,000.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Vincent G. Dethier, Department of Biology; *Insect Chemoreception and Mechanism of Action of Attractants and Repellents*; 3 years; \$30,000.
- UNIVERSITY OF KENTUCKY, Louisville, Ky.; Richard L. Hardin and Peter R. Moore, Department of Biochemistry, School of Medicine; *Enzymes Concerned with Phosphorylation of Glycerol*; 2 years; \$5,500.
- UNIVERSITY COLLEGE LONDON, London, England; C. K. Ingold, Department of Chemistry; *Kinetics of Enzyme Reactions*; 1 year; \$2,900.
- UNIVERSITY OF LOUISVILLE, Louisville, Ky.; John F. Taylor and Duncan Dallam, Department of Biochemistry; *Enzymes Associated with Lipoproteins*; 2 years; \$16,000.
- LOYOLA UNIVERSITY, Chicago, Ill.; Norten C. Melchoir, Department of Biochemistry; *Molecular Structure and the Intensity of the Absorption of Light*; 3 years; \$12,000.
- MICHIGAN STATE COLLEGE, East Lansing, Mich.; Robert S. Bandurski, Department of Botany and Plant Pathology; *Biochemistry of Sulfate Reduction*; 2 years; \$12,000.



- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; P. D. Boyer, Department of Physiological Chemistry; *Mechanism and Control of Certain Metabolic Enzymes*; 3 years; \$18,000.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; Rufus Lumry, Department of Chemistry; *Reversible Structural Changes in Proteins*; 3 years; \$15,000.
- NATIONAL INSTITUTES OF HEALTH, Bethesda, Md.; Dr. Leah Bloch-Frankenthal; *Epsilon-Acylase in Animal Organs and Tissues*; 1 year; \$2,000.
- NEW YORK UNIVERSITY, New York, N. Y.; Werner K. Maas, Department of Pharmacology, College of Medicine; *Enzyme Synthesis in Temperature-Sensitive Mutants of Bacteria*; 2 years; \$8,500.
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; John W. Hastings, Department of Biological Sciences; *Role of Flavins in Bioluminescence*; 2 years; \$10,000.
- UNIVERSITY OF OREGON, Eugene, Oreg.; Howard S. Mason, Department of Biochemistry, Medical School; *Biochemistry of Natural Melanins*; 3 years; \$27,000.
- UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; B. Chance, Johnson Foundation for Medical Physics; *Dynamics of Intracellular Enzyme Systems*; 5 years; \$63,000.
- PENNSYLVANIA STATE UNIVERSITY, State College, Pa.; Ray Pepinsky, Department of Physics; *Nucleic and Desoxynucleic Acid Fragments*; 2 years; \$20,000.
- PRINCETON UNIVERSITY, Princeton, N. J.; A. M. Chase, Department of Biology; *Mechanism of Enzyme Action: Luciferase*; 3 years; \$9,500.
- UNIVERSITY OF PUERTO RICO, Mayaguez, Puerto Rico; Fred V. Soltero, Department of Chemistry; *Mechanism of Penicillin Biosynthesis*; 2 years; \$10,000.
- PURDUE UNIVERSITY, Lafayette, Ind.; Herschel Hunt, Department of Chemistry; *Heats of Combustion of Amino Acids and Proteins*; 3 years; \$25,000.
- REED COLLEGE, Portland, Oreg.; Helen A. Stafford, Department of Biology; *Pyridine Nucleotide Dehydrogenases in Higher Plants*; 3 years; \$9,500.
- RUTGERS UNIVERSITY, New Brunswick, N. J.; Walter J. Nickerson and Joseph R. Merkel, Department of Microbiology; *Metal Regulated Reactions of Flavin Systems*; 2 years; \$15,000.
- UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, Calif.; Paul D. Saltman, Department of Biochemistry, School of Medicine; *Enzymatic Mechanism of CO<sub>2</sub> Fixation in the Succulents*; 2 years; \$10,000.
- TUFTS COLLEGE, Medford, Mass.; Erich Heinz, Department of Biochemistry; *Chemical and Physico-Chemical Basis of Active Transport*; 2 years; \$10,000.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; Robert A. Alberty, Department of Chemistry; *Physical Chemical Studies of Fumarase*; 2 years; \$22,000.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; Helmut Beinert, Institute for Enzyme Research; *Isolation and Characterization of a New Flavoprotein*; 2 years; \$10,000.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; Philip P. Cohen, Department of Physiological Chemistry; *Enzymatic Peroxidative Breakdown of Uric Acid*; 3 years; \$24,000.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; Henry A. Lardy, Institute for Enzyme Research; *Apparatus for Enzyme Research*; 2 years; \$7,500.
- THE GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, Washington, D. C.; Dr. Ira R. Telford; *Application of Densitometric Measurements in the Study of Basophilia of Nerve Cells*; 1 year; \$550.

### Physics

- AMHERST COLLEGE, Amherst, Mass.; T. Soller, Department of Physics; *Metals and Paramagnetic Salts Below One-Tenth Degree Absolute*; 2 years; \$19,500.
- BROWN UNIVERSITY, Providence, R. I.; H. E. Farnsworth, Department of Physics; *Catalytic Action of Crystal Faces*; 2 years; \$12,400.

- BROWN UNIVERSITY, Providence, R. I.; Leonard Maximon, Department of Physics; *Evaluation of the Integral Cross Section for Bremsstrahlung*; 2 years; \$9,500.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; J. R. Pellam, Department of Physics; *Cryogenic Research*; 3 years; \$34,500.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Francis A. Jenkins, Department of Physics; *Nuclear Moments from Observations on Hyperfine Structure in the Optical Region*; 2 years; \$18,300.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; D. S. Saxon, Department of Physics; *Theoretical Nuclear and Atomic Physics*; 2 years; \$21,100.
- CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh, Pa.; Sergio DeBenedetti, Department of Physics; *Slow Positrons in Solids*; 2 years; \$20,600.
- CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh, Pa.; S. A. Friedberg, Department of Physics; *Investigations in Low Temperature Physics*; 2 years; \$14,700.
- CLEMSON AGRICULTURAL COLLEGE, Clemson, S. C.; J. E. Miller, Department of Physics; *A Study of Sulphur*; 1 year; \$5,700.
- COLUMBIA UNIVERSITY, New York, N. Y.; Henry A. Boorse, Department of Physics; *Research in Low Temperature Physics*; 2 years; \$15,700.
- COLUMBIA UNIVERSITY, New York, N. Y.; Leon Brillouin, Department of Physics; *Physics and Information Theory*; 1 year; \$12,600.
- COLUMBIA UNIVERSITY, New York, N. Y.; Gerard G. Harris, Department of Physics; *Emulsion Study of High Energy Nuclear Interactions*; 2 years; \$10,400.
- COLUMBIA UNIVERSITY, New York, N. Y.; P. Kusch, Department of Physics; *Energy Levels and Hyperfine Structure of Helium Three and Four*; 2 years; \$24,300.
- UNIVERSITY OF DENVER, Denver, Colo.; Mario Iona, Department of Physics; *Asymmetry of Extensive Air Showers*; 2 years; \$12,600.
- DEPAUW UNIVERSITY, Greencastle, Ind.; Malcolm Correll, Department of Physics; *Characteristics of Active Region Prominences of the Sun*; 2 years; \$4,200.
- DUKE UNIVERSITY, Durham, N. C.; H. Sponer, Department of Physics; *Electronic Structure of Molecules*; 2 years; \$14,200.
- GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, Ga.; L. D. Wyly, Department of Physics; *Angular Correlations Between Nuclear Radiations*; 2 years; \$15,000.
- ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago, Ill.; W. E. Bennett, Department of Physics; *Nuclear Reactions with Alpha-Particles of Low Energy*; 2 years; \$11,300.
- ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago, Ill.; Forrest F. Cleveland, Department of Physics; *Spectroscopic Determination of Molecular Thermodynamic Properties*; 2 years; \$13,500.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; J. S. Koehler and F. Seitz, Department of Physics; *Plastic Deformation*; 2 years; \$18,100.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; Robert Maurer, Department of Physics; *Low Temperature Research on Polar Crystals*; 2 years; \$14,300.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; Frederick Seitz, Department of Physics; *Imperfections in Crystalline Materials*; 2 years; \$12,500.
- INDIANA UNIVERSITY, Bloomington, Ind.; K. A. Brueckner, Department of Physics; *Theory and Interpretation of Elementary Particle*; 2 years; \$32,200.
- INDIANA UNIVERSITY, Bloomington, Ind.; R. W. Thompson, Department of Physics; *Construction of a Double Cloud Chamber for Research on Fundamental Particles*; 2 years; \$78,900.
- STATE UNIVERSITY OF IOWA, Iowa City, Iowa; J. M. Jauch, Department of Physics; *The Scattering Matrix*; 2 years; \$16,100.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; G. H. Dieke, Department of Physics; *Spectroscopy of Rare Earths at Low Temperatures*; 1 year; \$4,700.
- UNIVERSITY OF KANSAS, Lawrence, Kans.; L. Worth Seagondollar, Department of Physics; *Nuclear Reactions with 3 MEV Protons*; 2 years; \$17,800.

- KENT STATE UNIVERSITY, Kent, Ohio; A. A. Silvidi, Department of Physics; *Continuous Cloud Chamber*; 2 years; \$3,100.
- UNIVERSITY OF MAINE, Orono, Maine; G. C. Krueger, Department of Physics; *Phase Contrast Analysis of Non-Homogeneous Transient Phenomena*; 2 years; \$6,600.
- UNIVERSITY OF MARYLAND, College Park, Md.; John S. Toll, Department of Physics; *Particle Theory and Foundations of Field Theory*; 2 years; \$22,800.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; Hans Mueller, Department of Physics; *Optics of Partially Polarized Light*; 3 years; \$15,600.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; Bruno B. Rossi, Department of Physics; *Cosmic Ray Research*; 1 year; \$9,300.
- MIDWESTERN UNIVERSITIES RESEARCH ASSOCIATION, UNIVERSITY OF ILLINOIS, Urbana, Ill.; D. W. Kerst, University of Illinois; *High-Energy Accelerator Problems*; 9 months; \$69,400.
- MIDWESTERN UNIVERSITIES RESEARCH ASSOCIATION, Urbana, Ill.; D. W. Kerst, University of Illinois; *High-Energy Accelerator Problems*; 3 months; \$83,100.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; W. B. Cheston, Department of Physics; *Medium Energy Nucleon-Nucleus Scattering*; 2 years; \$5,000.
- NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY, Campus Station Socorro, N. Mex.; Dr. E. J. Workman, President; *Geochemical Effects of Freezing of Terrestrial Waters*; 2 years; \$16,100.
- OHIO STATE UNIVERSITY, Columbus, Ohio; Jan Korringa, Department of Physics; *Energy Levels and Relaxation Mechanisms of Paramagnetic Ions*; 2 years; \$8,500.
- UNIVERSITY OF OKLAHOMA, Norman, Okla.; R. G. Fowler, Department of Physics; *Conductivity Coefficients in Highly Ionized Media*; 2 years; \$11,000.
- UNIVERSITY OF OREGON, Eugene, Oreg.; Bernd Crasemann, Department of Physics; *Decay Schemes of Long Lived Positron Emitters*; 2 years; \$7,700.
- UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; K. R. Atkins, Department of Physics; *Superfluidity of Liquid Helium*; 2 years; \$22,200.
- PENNSYLVANIA STATE UNIVERSITY, University Park, Pa.; Edwin R. Fitzgerald, Department of Physics; *Dynamic Properties of Polymers*; 2 years, \$8,300.
- UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; W. E. Stephens, Department of Physics; *Photonuclear and Transmutation Processes*; 2 years; \$24,700.
- UNIVERSITY OF PITTSBURGH, Pittsburgh, Pa.; C. Dean and G. A. Jeffrey, Department of Physics; *Nuclear Quadrupole Coupling and X-Ray Diffraction Data*; 2 years; \$11,500.
- UNIVERSITY OF PITTSBURGH, Pittsburgh, Pa.; T. M. Donahue, Department of Physics; *Sodium and Oxygen Air-Glow*; 2 years; \$9,900.
- PRINCIPIA COLLEGE, Elsau, Ill.; S. L. Leonard, Department of Physics; *Direct Pair Production by Electrons of 200-500 MEV Energy*; 2 years; \$4,200.
- PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; Suraj N. Gupta, Department of Physics; *Quantum Theory of Fields*; 2 years; \$8,500.
- PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; K. W. Meissner, Department of Physics; *An Atomic Beam Source for Wavelength Standard*; 1 year; \$9,100.
- RENSSELAER POLYTECHNIC INSTITUTE, Troy, N. Y.; J. M. Greenberg, Department of Physics; *Approximations in the Theory of Scattering*; 2 years; \$9,100.
- RICE INSTITUTE, Houston, Tex.; C. F. Squire, Department of Physics; *Studies in Solid State Physics*; 2 years; \$22,300.
- UNIVERSITY OF ROCHESTER, Rochester, N. Y.; M. P. Givens, Institute of Optics; *A Study of Solids with Soft X-Rays*; 2 years; \$14,200.
- SMITH COLLEGE, Northampton, Mass.; Irving L. Kofsky, Department of Physics; *Structure and Development of Air Showers*; 2 years; \$2,700.
- SMITH COLLEGE, Northampton, Mass.; Nora M. Mohler, Department of Physics; *Studies with Nuclear Plates*; 15 months; \$7,800.

- SMITH COLLEGE, Northampton, Mass.; William T. Scott, Department of Physics; *Nuclear Scattering of Mesons*; 2 years; \$2,300.
- STANFORD UNIVERSITY, Stanford, Calif.; G. E. Pake, Department of Physics; *Hyper-fine Structure of Paramagnetic Resonance*; 1 year; \$6,900.
- STANFORD UNIVERSITY, Stanford, Calif.; W. K. H. Panofsky, Department of Physics; *Design Study for High-Energy Magnetic Spectrometers*; 1 year; \$15,600.
- SYRACUSE UNIVERSITY, Syracuse, N. Y.; Peter Fong, Department of Physics; *Theory of Nuclear Fission*; 2 years; \$5,500.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; J. W. Keuffel, Department of Physics; *Quantum Theory of Gravitation*; 2 years; \$19,200.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; Grant R. Fowles, Department of Physics; *Isotope Shifts in the Spectra*; 2 years; \$10,300.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; J. W. Keuffel, Department of Physics; *A Scintillation Counter Study of Unstable Cosmic Ray Particles*; 3 years; \$24,600.
- VANDERBILT UNIVERSITY, Nashville, Tenn.; Ingram Bloch, Department of Physics; *Normal Modes of Vibration of Nuclei*; 1 year; \$9,300.
- UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE, Burlington, Vt.; Adam S. Skapski, Department of Physics; *The Influence of Thickness on the Melting Point of Tin Lamellae*; 2 years; \$10,300.
- UNIVERSITY OF VIRGINIA, Charlottesville, Va.; Nicolas Cabrera, Department of Physics; *Dislocations in Crystal Growth and Plastic Deformation*; 2 years; \$6,100.
- UNIVERSITY OF WASHINGTON, Seattle, Wash.; J. H. Manley, Department of Physics; *Nuclear Emulsion Studies of Pion-Proton Scattering*; 3 years; \$9,000.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; Kenneth M. Watson, Department of Physics; *High Energy Nuclear Reactions*; 2 years; \$10,300.
- UNIVERSITY OF WYOMING, Laramie, Wyo.; F. J. Bueche, Department of Physics; *Mechanical Properties of High Polymers*; 1 year; \$4,300.
- YALE UNIVERSITY, New Haven, Conn.; V. W. Hughes, Department of Physics; *Atomic Beam Magnetic Resonance Investigations*; 2 years; \$26,300.
- YALE UNIVERSITY, New Haven, Conn.; C. T. Lane, Department of Physics; *Low Temperature Physics*; 3 years; \$26,400.

### Psychobiology

- THE AMERICAN MUSEUM OF NATURAL HISTORY, New York, N. Y.; T. C. Schneirla, Department of Animal Behavior; *Army Ant Behavior and Its Biological Basis*; 2 years; \$4,800.
- BROWN UNIVERSITY, Providence, R. I.; Carl Pfaffmann, Department of Psychology; *Behavioral Study of Odor Discrimination*; 1 year; \$4,800.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Roger W. Sperry, Division of Biology; *Neural Mechanisms of Behavior*; 2 years; \$31,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; David Krech, Department of Psychology; *Brain Chemistry and Behavior*; 1 year; \$11,600.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Mark R. Rosenzweig, Department of Psychology; *Physiological Mechanisms of Binaural Perception*; 1 year; \$3,200.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; John P. Seward, Department of Psychology, Los Angeles, Calif.; *Research on Drive-Reward Interaction*; 2 years; \$9,300.
- CORNELL UNIVERSITY, Ithaca, N. Y.; Eleanor J. Gibson, Richard D. Walk, Department of Psychology; *Development of Visual Perception*; 2 years; \$13,000.
- FLORIDA STATE UNIVERSITY, Tallahassee, Fla.; W. N. Kellogg, Oceanographic Institute; *Echolocation in the Dolphin*; 1 year; \$5,600.
- FLORIDA STATE UNIVERSITY, Tallahassee, Fla.; Daniel R. Kenshalo, Department of Psychology; *An Analysis of Tactile Stimuli*; 1 year; \$4,800.

- GRINNELL COLLEGE, Grinnell, Iowa; Irving Y. Fishman, Department of Biology; *Research on Chemoreceptors*; 2 years; \$6,800.
- HARVARD UNIVERSITY, Cambridge, Mass.; Eric G. Heinemann, Department of Psychology; *Simultaneous Contrast in Human Vision*; 18 months; \$7,600.
- HARVARD UNIVERSITY, Cambridge, Mass.; B. F. Skinner, Department of Psychology; *Research on Reinforcement Schedules*; 2 years; \$32,000.
- HARVARD UNIVERSITY, Cambridge, Mass.; Philip Teitelbaum, Department of Psychology; *Effect of Hypothalamic Lesions on Behavior*; 1 year; \$5,000.
- HOWARD UNIVERSITY, Washington, D. C.; Max Meenes, Department of Psychology; *Research and Training in Experimental Psychology*; 2 years; \$12,100.
- INDIANA UNIVERSITY, Bloomington, Ind.; W. K. Estes and C. J. Burke, Department of Psychology; *Mathematical Models for Behavior Data*; 2 years; \$8,200.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; James Deese, Department of Psychology; *Analyses of Sources of Responses in Verbal Recall*; 2 years; \$13,100.
- LEHIGH UNIVERSITY, Bethlehem, Pa.; Natha B. Gross, Department of Psychology; *Neurophysiological Processes in the Auditory Cortices*; 2 years; \$9,600.
- LOUISIANA STATE UNIVERSITY AND AGRICULTURAL AND MECHANICAL COLLEGE, Baton Rouge, La.; C. E. Noble, Department of Psychology; *Analysis of Trial and Error Learning*; 2 years; \$14,700.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; John E. Bardach, Department of Fisheries; *Behavior of Reef Fishes*; 2 years; \$14,000.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Russell A. Clark, Department of Psychology; *Factors Related to Motivation*; 1 year; \$5,400.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Edward L. Walker, Department of Psychology; *Comparison of Conditioning Techniques*; 1 year; \$7,000.
- MONTANA STATE COLLEGE, Bozeman, Mont.; Jack E. Conklin, Department of Psychology; *Studies of Apparent Movement*; 2 years; \$7,300.
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; Carl P. Duncan and Donald J. Lewis, Department of Psychology; *Persistence of Unrewarded Responses in Human Adults*; 3 years; \$17,600.
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; D. J. Lewis and J. W. Cotton, Department of Psychology; *Research on Learning and Retention*; 2 years; \$10,200.
- PENNSYLVANIA STATE UNIVERSITY, State College Pa.; John F. Corso, Department of Psychology; *Neural Quantum Theory of Hearing*; 1 year; \$7,100.
- UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; Eliot Stellar, Institute of Neurological Sciences; *Physiological Mechanisms Regulating Motivated Behavior*; 2 years; \$13,300.
- PRINCETON UNIVERSITY, Princeton, N. J.; William M. Smith, Department of Psychology; *Temporal Characteristics of Visual Processes*; 2 years; \$10,000.
- SARAH LAWRENCE COLLEGE, Bronxville, N. Y.; Mary E. Collins and Ruth C. Wylie, Department of Psychology; *Research and Training in Experimental Psychology*; 2 years; \$7,000.
- STANFORD UNIVERSITY, Stanford, Calif.; Calvin P. Stone, Department of Psychology; *Behavior of Hypophysectomized Rats*; 2 years; \$9,100.
- SWARTHMORE COLLEGE, Swarthmore, Pa.; Wolfgang Kohler, Department of Psychology; *Problems in Gestalt Psychology*; 3 years; \$26,600.
- SWARTHMORE COLLEGE, Swarthmore, Pa.; W. C. H. Prentice, Department of Psychology; *Psychological Research in the Department of Psychology*; 5 years; \$27,600.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; James L. Morey, Department of Psychology; *Research on Latent Learning*; 1 year; \$5,300.
- UNIVERSITY OF VIRGINIA, Charlottesville, Va.; Frank W. Finger and L. Starling Reid, Department of Psychology; *Research on Induced Drive States*; 3 years; \$15,500.
- UNIVERSITY OF WASHINGTON, Seattle, Wash.; Moncrieff H. Smith, Jr., Department of Psychology; *Aspects of Biological Motivation*; 2 years; \$8,900.

- WESTERN RESERVE UNIVERSITY, Cleveland, Ohio; Jan H. Bruell and George W. Albee, Department of Psychology; *Influence of Motor Events on Visual Perception*; 2 years; \$14,600.
- UNIVERSITY OF WICHITA, Wichita, Kans.; N. H. Pronko, Department of Psychology; *Research and Training in Experimental Psychology*; 2 years; \$10,000.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; E. James Archer, Department of Psychology; *Information Transmission and the Identification of Concepts*; 2 years; \$7,800.
- UNIVERSITY OF WYOMING, Laramie, Wyo.; Margaret Altmann; *Behavior Patterns in Ungulates*; 3 years; \$4,100.
- YALE UNIVERSITY, New Haven, Conn.; Frank A. Logan, Department of Psychology; *Conditions of Reinforcement*; 2 years \$15,500.
- YALE UNIVERSITY, New Haven, Conn.; Paul D. MacLean, Department of Psychiatry; *Effects of Hippocampal Seizures on Conditioned Behavior*; 1 year; \$7,500.
- THE YERKES LABORATORY OF PRIMATE BIOLOGY, INC., Orange Park, Fla.; Henry W. Nissen and Karl H. Pribram; *The Basic Research Program of the Yerkes Laboratories of Primate Biology*; 3 years; \$120,000.

### *Regulatory Biology*

- BARNARD COLLEGE, New York, N. Y.; Aubrey Gorbman, Department of Zoology; *Comparative Physiology of Thyroidal Function*; 2 years; \$13,300.
- BOSTON UNIVERSITY SCHOOL OF MEDICINE, Boston, Mass.; John D. Ifft, Department of Anatomy; *Gonadotrophic Activities of the Adenohypophysis*; 3 years; \$13,800.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; James Bonner, Department of Biology; *Hormonal Control of Plant Responses*; 3 years; \$27,800.
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Arthur W. Galston, Department of Biology; *Light-Controlled Growth Reactions*; 3 years; \$22,400.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Edward A. Adelberg, Department of Bacteriology; *Enzymatic Changes in Genetic Adaptation*; 4 years; \$26,100.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Clarence M. Agress, Department of Medicine; *Distribution and Nature of the Sensory Coronary Arterial Innervation*; 2 years; \$12,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Michael Doudoroff, Department of Bacteriology; *Mechanisms of Utilization of Carbohydrates by Microorganisms*; 4 years; \$26,700.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Robert Burr Livingston, Department of Anatomy; *Neurophysiological Mechanisms in Movement and Perception*; 2 years; \$20,400.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Donald M. Reynolds, Department of Bacteriology, Davis, Calif.; *Microbiological and Biochemical Aspects of Chitin Decomposition*; 2 years; \$6,200.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Sidney Roberts, Department of Physiological Chemistry; *Hypothalamic Regulation of Pituitary Function*; 3 years; \$24,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Leonard Machlis, Department of Botany; *Metabolic Pathways in the Filamentous Fungus, Allomyces*; 3 years; \$15,400.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; E. S. Guzman Barron, Department of Medicine; *Pathways of Glucose Oxidation in Molds*; 1 year; \$3,450.
- COLUMBIA UNIVERSITY, New York, N. Y.; Edwin Chargaff, Department of Biochemistry, College of Physicians and Surgeons; *Role of Phosphorolytic and Phosphorylating Enzymes in Nucleic Acid Metabolism*; 3 years; \$28,600.

- COLUMBIA UNIVERSITY, New York, N. Y.; Philip Feigelson, Department of Biochemistry, College of Physicians and Surgeons; *Adaptive Enzyme Formation in Mammals*; 6 months; \$2,070.
- COLUMBIA UNIVERSITY, New York, N. Y.; Philip Feigelson, Department of Biochemistry, College of Physicians and Surgeons; *Adaptive Enzyme Formation in Mammals*; 2 years; \$9,600.
- CORNELL UNIVERSITY, Ithaca, N. Y.; Donald B. Melville, Medical College; *Biochemistry of Ergothioneine*; 3 years; \$30,000.
- UNIVERSITY OF DELAWARE, Newark, Del.; Bruce M. Pollock, Department of Biological Sciences; *Physiological and Biochemical Mechanisms of the Rest Period in Seeds*; 3 years; \$13,350.
- HAHNEMANN MEDICAL COLLEGE AND HOSPITAL, Philadelphia, Pa.; Albert G. Moat, Department of Bacteriology and Immunology; *Role of Biotin in Carbohydrate Metabolism*; 2 years; \$8,200.
- HARVARD UNIVERSITY, Cambridge, Mass.; Frederick L. Hisaw, Department of Biology; *Reproduction in Elasmobranch Fishes and Ascidians*; 2 years; \$6,000.
- HARVARD UNIVERSITY, Cambridge, Mass.; Boris Magasanik, Department of Immunology and Bacteriology; *Degradation of Histidine and Biosynthesis of Purines in Aerobacter Aerogenes*; 3 years; \$15,500.
- HARVARD UNIVERSITY, Cambridge, Mass.; Paul L. Munson, Harvard School of Dental Medicine; *Mechanism of Stimulation of ACTH Secretion*; 2 years; \$15,200.
- UNIVERSITY OF ILLINOIS, Urbana, Ill.; Robert Emerson, Department of Botany; *Efficiency of Photosynthesis*; 3 years; \$24,800.
- INDIANA UNIVERSITY, Bloomington, Ind.; Felix Haurowitz, Department of Chemistry; *Biosynthesis of Proteins and Antibodies*; 3 years; \$18,000.
- INDIANA UNIVERSITY, Bloomington, Ind.; Eugene D. Weinberg, Department of Bacteriology; *Mutual Effects of Metallic Ions and Antibiotics*; 2 years; \$6,500.
- THE INSTITUTE FOR CANCER RESEARCH AND THE LANKENAU HOSPITAL RESEARCH INSTITUTE, Philadelphia, Pa.; Sidney Weinhouse, Department of Metabolic Chemistry; *Biosynthesis of Valine and Isoleucine*; 3 years; \$16,500.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Andre T. Jagendorf, McCollum-Pratt Institute; *Tuber Initiation in the Potato Plant*; 2 years; \$13,500.
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Manfred M. Mayer, School of Hygiene and Public Health; *Cytotoxic Reactions Mediated by Antibody and Complement*; 5 years; \$50,000.
- KANSAS STATE COLLEGE, Manhattan, Kans.; Byron S. Miller and John A. Johnson, Department of Flour and Feed Milling Industries; *Biochemical Factors in The Resistance of The Wheat Plant to The Hessian Fly*; 2 years; \$6,800.
- MARINE BIOLOGICAL LABORATORY, Woods Hole, Mass.; Lewis H. Kleinholz, Department of Biology, Reed College; *Osmoregulation and Excretion of Tunicates*; 2 years; \$4,625.
- UNIVERSITY OF MARYLAND, College Park, Md.; Samuel P. Bessman, Department of Pediatrics, School of Medicine; *Low Energy Transacylation in Animal Tissues*; 1 year; \$8,500.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; Gene M. Brown, Department of Biology; *Enzyme Systems Involved in The Metabolism of Pantothenic Acid*; 3 years; \$13,350.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; Warren S. McCulloch, Research Laboratory of Electronics; *Transmission of Signals Across the Central Nervous System*; 2 years; \$25,600.
- UNIVERSITY OF MIAMI, Coral Gables, Fla.; M. Michael Sigel, Department of Bacteriology, School of Medicine; *Cellular Resistance to Virus Infections*; 2 years; \$21,750.

- NEW ENGLAND DEACONESS HOSPITAL, Boston, Mass.; Nancy Nichols, Baker Clinic Research Laboratory; *Hepatic Glycogenesis and Potassium Distribution*; 1 year; \$3,500.
- NEW YORK MEDICAL COLLEGE, New York, N. Y.; Carl Neuberg, Department of Biochemistry; *Mechanism of Action of Certain Synthetic Hydrazine Derivatives*; 2 years; \$15,500.
- NEW YORK UNIVERSITY, New York, N. Y.; Bernard D. Davis, Department of Pharmacology; *Bacterial Growth Factors Derived from Catechol*; 1 year; \$5,200.
- NEW YORK UNIVERSITY, New York, N. Y.; Albert S. Gordon, Department of Biology, Washington Square College of Arts and Sciences; *Mechanisms Underlying Cell Formation With Emphasis Upon Erythropoiesis*; 2 years; \$15,250.
- NEW YORK UNIVERSITY, New York, N. Y.; Alwin Pappenheimer, Jr., Department of Microbiology; *A Study of SIII Depolymerase*; 3 years; \$12,100.
- NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING, Raleigh, N. C.; Clayton McAuliffe, Department of Agronomy; *Absorption and Metabolism of Nitrogen Compounds by the Tobacco Plant*; 2 years; \$10,000.
- UNIVERSITY OF NORTH CAROLINA, Chapel Hill, N. C.; T. Z. Csaky, Department of Pharmacology; *Relationship Between Cellular Permeability and Carbohydrate Metabolism*; 2 years; \$10,200.
- OREGON STATE COLLEGE, Corvallis, Oreg.; Vernon H. Cheldelin, Department of Chemistry, Science Research Institute; *Nutrition and Metabolism of Insects*; 2 years; \$24,000.
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; David P. Earle, Department of Medicine, The Medical School; *Serum Complement Inhibition*; 2 years; \$11,500.
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; Robert W. Hull, Department of Biological Sciences; *Feeding Mechanisms of Suctorian Protozoa*; 2 years; \$7,100.
- UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; John R. Brobeck, Department of Physiology, School of Medicine; *Regulation by the Central Nervous System of Food Intake*; 5 years; \$35,500.
- PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; Harry Beevers, Department of Biological Sciences; *Oxidations and Phosphorylations Induced by Enzymes and Plants*; 3 years; \$9,800.
- THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH; Dr. D. W. Wooley, Department of Microbiology; *Role of Folic Acid in Purine Biosynthesis*; 6 months; \$500.
- RUTGERS UNIVERSITY, New Brunswick, N. J.; Arthur F. Hopper, Department of Zoology; *Role of Thyroid Gland in Fish*; 2 years; \$4,000.
- UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, Calif.; Sydney C. Rittenberg, Department of Bacteriology; *Metabolism of Malonate by Pseudomonas Fluorescens*; 3 years; \$24,000.
- STANFORD UNIVERSITY, Stanford, Calif.; Arthur C. Giese, Department of Biological Sciences; *Comparative Physiology of Nutrition and Reproduction of Marine Invertebrates*; 2 years; \$7,600.
- STANFORD UNIVERSITY, Stanford, Calif.; O. H. Robertson, Department of Biology; *Experimental Acceleration of Gonad Development in Trout and Salmon*; 2 years; \$3,450.
- TEXAS AGRICULTURAL EXPERIMENT STATION, College Station, Tex.; James A. Liverman, Department of Biochemistry and Nutrition; *Biochemistry of the Photo-periodic Response*; 2 years; \$12,000.
- UNIVERSITY OF TEXAS, Austin, Tex.; J. Allen Scott and Etta Mae Macdonald, Medical Branch; *Nature of Racial or Species Immunity*; 2 years; \$12,000.
- TUFTS COLLEGE, Medford, Mass.; K. D. Roeder, Department of Biology; *Insect Neurophysiology, Neuropharmacology and Behavior*; 3 years; \$42,300.



- VANDERBILT UNIVERSITY, Nashville, Tenn.; Jane H. Park, Department of Physiology; *Relation of Thyroxine to Oxidative Phosphorylation*; 2 years; \$10,000.
- WASHINGTON UNIVERSITY, St. Louis, Mo.; Oliver H. Lowry, Department of Pharmacology, School of Medicine; *Riboflavin Enzymes*; 3 years; \$26,050.
- WASHINGTON UNIVERSITY, St. Louis, Mo.; Roy R. Peterson, Department of Anatomy, School of Medicine; *Cytology and Secretory Mechanisms in The Adenohypophysis*; 2 years; \$8,400.
- WASHINGTON UNIVERSITY, St. Louis, Mo.; Theodor Rosebury, Department of Bacteriology; *Interactions of Microorganisms Indigeneous to Man*; 2 years; \$15,250.
- WEST VIRGINIA UNIVERSITY, Morgantown, W. Va.; H. L. Barnett and V. G. Lilly, Department of Plant Pathology, Bacteriology and Entomology; *Parasitism of *Piptoccephalis Freseniana* on Other Fungi*; 2 years; \$9,400.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; Eldon H. Newcomb, Department of Botany; *Metabolic Changes Underlying Cell Enlargement in Plants*; 3 years; \$14,100.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; Harold R. Wolfe, Department of Zoology; *Antibody Response of an Animal as Correlated With Its Age*; 2 years; \$14,000.
- THE WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY, Shrewsbury, Mass.; Ralph I. Dorfman, Associate Director of Laboratories; *Mechanisms of Hormone Action*; 3 years; \$23,600.
- YALE UNIVERSITY, New Haven, Conn.; Gifford B. Pinchot, Department of Microbiology; *Phosphorylation in Cell-Free Bacterial Extracts*; 2 years; \$11,600.

### *Systematic Biology*

- ALLEGHENY COLLEGE, Meadville, Pa.; Robert E. Bugbee, Department of Biology; *Taxonomy and Life Histories of Eurytomidae*; 2 years; \$2,000.
- ALLEGHENY COLLEGE, Meadville, Pa.; D. J. Rogers, Department of Biology; *Variation in *Manihot Utilissima**; 1 year; \$2,500.
- CALIFORNIA ACADEMY OF SCIENCES, San Francisco, Calif.; Elwood C. Zimmerman; *Insects of Hawaii*; 2 years; \$24,600.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; John N. Belkin, Department of Entomology, Los Angeles, Calif.; *Mosquitoes of the South Pacific*; 2 years; \$7,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; T. E. Rawlins, Department of Plant Pathology; *Investigations in Cystematic Plant Virology*; 3 years; \$10,000.
- COLORADO AGRICULTURAL AND MECHANICAL COLLEGE, Fort Collins, Colo.; Tyler A. Woolley, Department of Zoology; *Investigation of *Colorado Oribatei**; 1 year; \$1,400.
- DUKE UNIVERSITY, Durham, N. C.; R. M. Schuster, Department of Botany; *Hepaticae of Eastern North America*; 1 year; \$5,000.
- UNIVERSITY OF FLORIDA, Gainesville, Fla.; Benjamin B. Leavitt, Department of Biology; *Analysis of Plankton from the Deep Scattering Layer*; 1 year; \$1,300.
- HARVARD UNIVERSITY, Cambridge, Mass.; Alfred S. Romer, Department of Zoology; *Collection, Preparation and Study of Carboniferous Tetrapods*; 2 years; \$11,500.
- UNIVERSITY OF HAWAII, Honolulu, Hawaii; Albert H. Banner, Department of Zoology; *Zoogeography of the Alpheidae in the Central Pacific*; 2 years; \$8,000.
- UNIVERSITY OF IDAHO, Moscow, Idaho; Malcolm T. Jollie, Department of Zoology; *Phylogeny of the Falconiformes*; 2 years; \$3,600.
- INDIANA UNIVERSITY, Bloomington, Ind.; James E. Canright, Department of Botany; *Floral Morphology and Anatomy of the Annonaceae*; 2 years; \$5,200.
- UNIVERSITY OF KANSAS, Lawrence, Kans.; E. Raymond Hall, Department of Zoology; *Speciation of North American Mammals*; 3 years; \$15,200.

- LOYOLA UNIVERSITY, New Orleans, La.; Walter G. Moore, Department of Biology; *Variation in Natural and Experimental Populations of Anostraca*; 2 years; \$5,000.
- MARYLAND DEPARTMENT OF RESEARCH AND EDUCATION, Solomons, Md.; Romeo Mansueti, Chesapeake Biological Laboratory; *Fish Eggs and Larvae of Chesapeake Bay*; 2 years; \$9,000.
- UNIVERSITY OF MIAMI, Coral Gables, Fla.; Lauren C. Gilman, Department of Zoology; *Morphological and Physiological Differences among Varieties of Paramecium*; 2 years; \$7,100.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Frederick K. Sparrow, Department of Botany; *The Fungus Genus Physoderma (Phycomycetes)*; 3 years; \$9,000.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Pierre Danscreau, Department of Botany; *Phytosociological Studies in the Canary Islands*; 1 year; \$3,500.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Pierre Danscreau, Department of Botany; *Phytosociological Studies in the Canary Islands*; 1 year; \$1,700.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; Alexander H. Smith, Department of Botany; *Manual of Fleshy Basidiomycetes of Western U. S.*; 3 years; \$12,400.
- MISSOURI BOTANICAL GARDEN, St. Louis, Mo.; Rolla M. Tryon, Jr., Assistant Curator of the Herbarium; *A Manual of the Fern Flora of Peru*; 3 years; \$12,100.
- NATIONAL ACADEMY OF SCIENCES, Washington, D. C.; Preston E. Cloud, Jr.; *Marine Mollusks of Reefs of the Pacific Ocean*; 1 year; \$1,950.
- NATIONAL ACADEMY OF SCIENCES, Washington, D. C.; Tracy I. Storer, Department of Zoology, University of California, Davis, California; *Biology and Ecology of Rats on Pacific Islands*; 2 years; \$25,000.
- NEW YORK ZOOLOGICAL SOCIETY, New York, N. Y.; Jocelyn Crane, Department of Tropical Research; *A Comparative Study of Ocypodid Crabs (Decapoda) of the World*; 5 years; \$18,000.
- UNIVERSITY OF OKLAHOMA, Norman, Okla.; Norman H. Boke, Department of Plant Sciences; *Developmental Anatomy of Vascular Plants*; 3 years; \$10,800.
- PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; George B. Cummins, Department of Botany and Plant Pathology; *Identity, Distribution, and Life Cycles of Grass Rusts*; 3 years; \$5,000.
- PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; Dorothy M. Powelson, Department of Biological Sciences; *Ecology of Myxobacteria*; 2 years; \$5,000.
- THE ROCKY MOUNTAIN BIOLOGICAL LABORATORY, Crested Butte, Colo.; Charles L. Remington; *Genetic and Ecological Adaptation in Natural Populations of Mountain Lepidoptera*; 2 years; \$5,000.
- SMITHSONIAN INSTITUTION, Washington, D. C.; Floyd A. McClure; *Taxonomy of the Bamboos*; 3 years; \$17,250.
- UNIVERSITY OF SOUTH CAROLINA, Columbia, S. C.; Harry W. Freeman, Department of Biology; *A Study of Fish in the Wateree River System*; 2 years; \$6,300.
- SOUTH DAKOTA STATE COLLEGE, College Station, S. Dak.; Thomas B. Thorson, Entomology-Zoology Department; *Fluid Compartments of Fishes*; 2 years; \$4,000.
- STANFORD UNIVERSITY, Stanford, Calif.; Victor C. Twitty, Department of Biological Sciences; *Developmental Anatomy of Vascular Plants*; 3 years; \$10,800.
- SWARTHMORE COLLEGE, Swarthmore, Pa.; Robert K. Enders, Department of Biology; *Mammals of Western Panama*; 3 years; \$5,000.
- UNIVERSITY OF TENNESSEE, Knoxville, Tenn.; L. R. Hesler, Department of Botany; *Agaricales of the Southeastern United States*; 2 years; \$6,000.
- UNIVERSITY OF TENNESSEE, Knoxville, Tenn.; A. J. Sharp, Department of Botany; *Vascular Plants of Tennessee*; 3 years; \$9,000.
- UNIVERSITY OF TEXAS, Austin, Tex.; Wilson S. Stone and Marshall R. Wheeler, Department of Zoology; *Drosophilidae of the Caribbean Region*; 3 years; \$34,500.
- TULANE UNIVERSITY, New Orleans, La.; E. Peter Volpe, Department of Zoology; *Classification of the Genus Bufo*; 2 years; \$6,000.

- TUSCULUM COLLEGE, Greeneville, Tenn.; Arnold Van Pelt, Department of Biology; *Altitudinal Distribution of Ants in the Southern Blue Ridge Province*; 1 year; \$2,000.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; Stephen D. Durrant, Department of Zoology; *Mammals of the Mountains of Southern Utah*; 1 year; \$2,700.
- UNIVERSITY OF UTAH, Salt Lake City, Utah; Robert K. Vickery, Jr., Department of Genetics; *Physiological Variability in Mimulus*; 2 years; \$8,000.
- STATE COLLEGE OF WASHINGTON, Pullman, Wash.; Kenneth E. Frick, Irrigation Experiment Station; *Nearctic Species in the Family Agromyzidae*; 2 years; \$3,000.
- UNIVERSITY OF WASHINGTON, Seattle, Wash.; Arthur R. Kruckeberg, Department of Botany; *Biosystematic Studies of Silene*; 3 years; \$5,000.
- YALE UNIVERSITY, New Haven, Conn.; Nicholas Polunin, Osborn Zoological Laboratory; *Arctic Bontany*; 2 years; \$4,000.
- YALE UNIVERSITY, New Haven, Conn.; John R. Reeder, Department of Plant Science; *Grass Embryo in Relation to Taxonomy and Phylogeny*; 2 years; \$5,400.

### General

- AMERICAN ACADEMY OF ARTS AND SCIENCES, Boston, Mass.; Philipp G. Frank; *The Acceptance of Scientific Theories*; 2 years; \$22,000.
- AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES, Washington, D. C.; Dr. Bentley Glass, President; *Expenses of Organization and Operation*; 10 months; \$17,600.
- ASSOCIATED UNIVERSITIES, INC., New York, N. Y.; Richard M. Emberson; *Studies of a Radio Astronomy Facility*; 1 year; \$85,000.
- UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; S. F. Cook, Department of Physiology; *Support of Basic Facilities for Conducting Scientific Investigations at White Mountain Research Station*; 3 years; \$50,000.
- CARNEGIE INSTITUTION OF WASHINGTON, Washington, D. C.; *Preliminary Studies of a Committee on Radio Astronomy*; \$6,800.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; *Preliminary Studies of the National Astronomical Observatory Panel*; \$9,700.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; A. A. Albert, Chairman of the Survey Committee; *Survey of Research Potential and Training in the Mathematical Sciences*; 18 months; \$39,900.
- UNIVERSITY OF CHICAGO, Chicago, Ill.; Cyril Stanley Smith, Institute for the Study of Metals; *A Study of the History of Metallurgy*; 1 year; \$11,100.
- COLUMBIA UNIVERSITY, New York, N. Y.; *Support of Studies by a Committee on Minerals Research*; 1 year; \$12,700.
- HIGHLANDS BIOLOGICAL STATION, INC., Highlands, N. C.; Dr. Lewis E. Anderson, President; *Summer Research at the Highlands Biological Station*; 3 years; \$17,250.
- UNIVERSITY OF COLORADO, Boulder, Colo.; Burton W. Jones, Department of Mathematics; *To Assist in an Exchange Professorship in Mathematics at the University of London*; \$1,000.
- LEHIGH UNIVERSITY, Bethlehem, Pa.; Adolph Grunbaum, Department of Philosophy; *A Critical Study in Philosophy of Science Bearing on Fundamental Physical Theory*; 2 years; \$6,100.
- MARINE BIOLOGICAL LABORATORY, Woods Hole, Mass.; Philip B. Armstrong, Director; *Provision of Funds for Scientific Equipment and Facilities for Biological Research*; 1 year; \$50,000.
- THE MOUNT DESERT ISLAND BIOLOGICAL LABORATORY, Salisbury Cove, Maine; Dr. Warner F. Sheldon; *Provision of Basic Research Equipment and Facilities*; 1 year; \$11,400.

- NAPLES ZOOLOGICAL STATION, Naples, Italy; R. Dohrn, Director; *Two American Tables at the Naples Zoological Station*; 5 years; \$10,000.
- THE ROCKY MOUNTAIN BIOLOGICAL LABORATORY, Crested Butte, Colo.; Colin S. Pittendrigh, Department of Biology; *Utilities for Basic Research at the Rocky Mountain Biological Laboratory*; 1 year; \$6,000.
- UNIVERSITY OF MICHIGAN, Ann Arbor, Mich.; *Research and Training at the University of Michigan Biological Station*; 1 year; \$6,900.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; *Biological Research at the Itasca Forestry and Biological Station*; 2 years; \$9,400.
- UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; *Summer Research by Medical Students*; 3 years; \$10,350.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; *Summer Research by Medical Students*; 3 years; \$10,350.
- NATIONAL ACADEMY OF SCIENCES, Washington, D. C.; *The Committee on Nuclear Sciences under the direction of the Division of Physical Sciences, National Research Council*; \$18,000.
- SMITHSONIAN INSTITUTION, Washington, D. C.; *The Barro Colorado Biological Laboratory, Barro Colorado Island, Gatun Lake, Panama Canal Zone*; 2 years; \$29,000.
- UNIVERSITY OF WISCONSIN, Madison, Wis.; Marshall Clagett, Department of the History of Science; *Medieval Antecedents to Early Modern Mathematics and Physics*; 1 year; \$11,500.

*Basic Research in Synthetic Rubber*

University of Akron.....	\$50,000
Burke Research Company.....	150,000
Case Institute of Technology.....	70,000
University of Chicago.....	55,000
Cornell University (2).....	20,000
	68,000
University of Illinois.....	135,000
Massachusetts Institute of Technology.....	105,000
Mellon Institute of Industrial Research.....	109,000
University of Minnesota.....	80,000
National Bureau of Standards.....	194,000
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Total.....	1,036,000

*Operation and Management of Government Laboratories, Akron, Ohio*

University of Akron.....	\$950,000
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