

APPENDIX C

Grants for Basic Research

ANTHROPOLOGICAL SCIENCES

UNIVERSITY OF ALASKA, College, Frederick Hadleigh-West; *Archaeological Survey of Seward Peninsula*; 1 year; \$11,500

Michael E. Krauss; *Aboriginal Languages of Alaska*; 1 year; \$15,000

AMERICAN MUSEUM OF NATURAL HISTORY, N.Y., N.Y.; Junius B. Bird; *The Statistical Analysis of Prehistoric Fabrics*; 1 year; \$14,400

James A. Ford; *Archaeological Survey in the Mississippi River Valley*; 1 year; \$29,900

UNIVERSITY OF ARIZONA, Tucson; Bryant Bannister; *Dendrochronological Study of the Casas Grandes Site*; 1 year; \$10,500

UNIVERSITY OF ARKANSAS, Fayetteville; Charles R. McGimsey, III; *An Archeological Appraisal of Arkansas*; 2 years; \$16,600

BRANDEIS UNIVERSITY, Waltham, Mass.; Robert A. Manners; *The Changing Culture of the Kipsigis Tribe of Kenya*; 1 year; \$14,100

UNIVERSITY OF BRITISH COLUMBIA, Vancouver, Canada; Robert J. Drake; *Animal Remains from Archaeological Sites*; 1 year; \$8,300

BROOKLYN COLLEGE, Brooklyn, N.Y.; Robert W. Ehrlich; *Excavations at Homolka*; 1 year; \$3,600

BROWN UNIVERSITY, Providence, R.I.; J. L. Giddings; *Beach Ridge Dating*; 1 year; \$20,400

UNIVERSITY OF CALIFORNIA, Berkeley; S. F. Cook; *Soil Analysis*; 1 year; \$9,500

John H. Rowe; *Interpretation of Peruvian Archaeology*; 2 years; \$13,200

S. L. Washburn and Irven DeVore; *Analyses of Primate Behavior*; 1 year; \$19,700

Joel M. Halpern, Los Angeles; *Cultural Evolution in Peasant Communities*; 2 years; \$20,000

H. B. Nicholson, Los Angeles; *Excavations at Cerro Portezuelo*; 1 year; \$16,000

Roger C. Owen and Cornelius H. Muller, Santa Barbara; *Floral Environment of the Paipai*; 2 years; \$3,100

CATHOLIC UNIVERSITY OF AMERICA, Washington, D.C.; Svend Frederiksen; *Collection of Eskimo Texts*; 1 year; \$12,800

Michael Kenny; *Influence of Spanish Expatriates*; 2 years; \$10,800

Gottfried O. Lang; *Culture Change Among the Sukuma*; 1 year; \$15,000

CHICAGO NATURAL HISTORY MUSEUM, III.; Paul S. Martin; *Cultural Stability in the Upper Little Colorado River Drainage*; 1 year; \$12,000

UNIVERSITY OF CHICAGO, Chicago, III.; Robert J. Braidwood; *Archaeological Evi-*

dence for the Appearance of Food Production; 2 years; \$52,100

F. Clark Howell; *Acheulian Site in Torralba, Spain*; 2 years; \$20,800

F. Clark Howell and Maxine R. Klein-dienst; *Investigation of Acheulian Site JK 2*; 1 year; \$16,800

David M. Schneider; *Comparative Study of Extra-Familial Kinship*; 1 year; \$27,000

CLEVELAND MUSEUM OF NATURAL HISTORY, Ohio; Olaf H. Prufer; *Palaeo-Indian Remains*; 1 year; \$2,000

UNIVERSITY OF COLORADO, Boulder; Robert H. Lister; *The Prehistory of the Utes*; 2 years; \$25,000

Joe Ben Wheat; *The Earl H. Morris Papers*; 1 year; \$8,500

COLUMBIA UNIVERSITY, New York, N.Y.; Harold C. Conklin; *Ethnoecological Study of the Philippines*; 1 year; \$40,000

Ralph S. Solecki; *Prehistoric Man in Shanidar Valley*; 1 year; \$5,100

Ralph S. Solecki and Rhodes W. Fairbridge; *Prehistoric Man in Nubia*; 2 years; \$38,500

Charles Wagley; *Ecological Adaptation in Portuguese Guinea*; 1 year; \$19,900

Uriel Weinreich; *Linguistic Distributions in Coterritorial Societies*; 2 yrs.; \$51,900

CORNELL UNIVERSITY, Ithaca, N.Y.; Charles F. Hockett; *Field Study of the Fijian Language*; 1 year; \$1,500

Morris E. Opler; *A Comparative Study of Village Life*; 2 years; \$20,000

DARTMOUTH COLLEGE, Hanover, N.H.; Gordon M. Day; *Abenaki Dialects*; 1 year; \$11,600

FLORIDA GEOLOGICAL SURVEY, Tallahassee; Stanley J. Olsen; *Mammal Remains from Archaeological Sites*; 2 years; \$8,200

UNIVERSITY OF FLORIDA, GAINESVILLE; John M. Goggin; *Spanish Ceramics in New World Archaeological Sites*; 1 year; \$4,600

Clayton E. Ray, John M. Goggin, and William H. Sears; *Post-Pleistocene Environments in Florida*; 2 years; \$19,200

GEORGE WASHINGTON UNIVERSITY, Wash., D.C.; John M. Campbell; *Archaeological Investigation of the Arctic Slope of Northern Alaska*; 1 year; \$19,300

HAMLIN UNIVERSITY, St. Paul, Minn.; Leiland R. Cooper; *Aboriginal Cultural Horizons in Minnesota*; 1 year; \$10,200

HARVARD UNIVERSITY, Cambridge, Mass.; Cora DuBois; *Change and Stability in India*; 2 years; \$14,800

Hugh O'Neill Hencken; *Study of Prehistoric Illyrians*; 1 year; \$5,500

Margaret A. Towle; *Use of Plants by Man*; 4 years; \$14,000

Gordon R. Willey; *Archaeological Exploration of a Maya Site*; 2 years; \$37,000

- HUNTER COLLEGE, N.Y., N.Y.; Alphonse Riesenfeld; *The Effects of Upright Posture*; 1 year; \$1,700
- IDAHO STATE COLLEGE, Pocatello; Earl H. Swanson, Jr.; *Archaeological Explorations in Eastern Idaho*; 1 year; \$14,200
- ILLINOIS ARCHAEOLOGICAL SURVEY, Urbana; Melvin L. Fowler; *Investigation of the Mississippi River Valley*; 1 year; \$40,000
- INDIANA HISTORICAL SOCIETY, Indianapolis; Glenn A. Black; *Proton Magnetometer Project*; 2 years; \$12,100
- INSTITUTE OF ANDEAN RESEARCH, N.Y., N.Y.; Gordon F. Ekholm; *Interrelationships of New World Cultures*; 1 year; \$32,300
- INSTITUTE FOR ADVANCED STUDY, Princeton, N.J.; Stephen Foltiny; *Cultural Interrelations during the Bronze and Early Iron Ages*; 1 year; \$3,100
- KENTUCKY RESEARCH FOUNDATION, Lexington; Douglas W. Schwartz; *Analysis of Kentucky Paleo-Indian*; 1 year; \$11,200
- UNIVERSITY OF MICHIGAN, Ann Arbor; James B. Griffin; *Prehistoric Occupations of the Great Lakes Area*; 2 years; \$35,000
- MILLS COLLEGE, Oakland, Calif.; Robert T. Anderson; *Urbanization of European Communities*; 1 year; \$3,000
- MILWAUKEE PUBLIC MUSEUM, Wis.; Stephan F. de Borhegyi; *Prehistoric Mexican Influences on the Maya*; 2 years; \$12,900
- MISSOURI BOTANICAL GARDEN, St. Louis; Hugh C. Cutler; *Studies of Archaeological Plant Material*; 3 years; \$24,300
- UNIVERSITY OF MISSOURI, Columbia; Carl H. Chapman; *Osage Prehistory*; 1 year; \$14,600
- UNIVERSITY OF NEW MEXICO, Albuquerque; Frank C. Hibben; *Recovery of Prehispanic Paintings*; 1 year; \$16,700
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; Gladwyn Murray Childs; *Ovimbundu Kingdoms*; 3 years; \$1,400
- UNIVERSITY OF OKLAHOMA, Norman; Robert E. Bell and William J. Mayer-Oakes; *Excavation of El Inga, Ecuador*; 1 year; \$13,900
- PENNSYLVANIA STATE UNIVERSITY, University Park; William T. Sanders; *Prehistoric Settlement Patterns of Teotihuacan*; 1 year; \$9,900
- UNIVERSITY OF PENNSYLVANIA, Philadelphia; Alfred Kidder, II; *Archaeology of Tikal, Guatemala*; 1 year; \$24,000
- Froelich Rainey; *Research on Archeological Techniques*; 1 year; \$30,900
- UNIVERSITY OF PITTSBURGH, Pa.; Edward A. Kennard; *Culture Change Among the Hopi*; 1 year; \$15,600
- R. S. PEABODY FOUNDATION FOR ARCHAEOLOGY, Andover, Mass.; Richard S. MacNeish; *Tehuacan Archaeological Investigations*; 2 years; \$21,500
- SMITH COLLEGE, Northampton, Mass.; Richard Slobodin; *Demographic Survey of the Western Kutchin*; 1 year; \$4,100
- SMITHSONIAN INSTITUTION, Washington, D.C.; Wallace L. Chafe; *Caddo Language Study*; 2 years; \$1,700
- Frank H. H. Roberts, Jr.; *Settlement Pattern in the Missouri Valley*; 1 year; \$20,000
- Gus W. Van Beek; *Culture History of South Arabia*; 1 year; \$14,600
- SOUTHERN ILLINOIS UNIVERSITY, Carbonale; J. Charles Kelley; *Northern Frontier of Mesoamerica*; 2 years; \$51,600
- STATE UNIVERSITY OF SOUTH DAKOTA, Vermillion; Wesley R. Hurt; *RadioCarbon Analysis of Brazilian Specimens*; 1 year; \$2,200
- TEMPLE UNIVERSITY, Philadelphia, Pa.; William B. Schwab; *Gwelo Urban Study*; 1 year; \$3,000
- TULANE UNIVERSITY OF LOUISIANA, New Orleans; John L. Fischer; *The Effects of Household Composition on Personality*; 1 year; \$20,000
- Henry Orenstein; *Social Change in Bombay*; 1 year; \$2,400
- Robert Wauchope; *Archaeological Exploration in Honduras*; 2 years; \$8,500
- UNIVERSITY OF UTAH, Salt Lake City; Jesse D. Jennings; *Excavation of Kaiparowits Plateau, Utah*; 2 years \$18,800
- UNIVERSITY OF WASHINGTON, Seattle; Robert T. Anderson; *Urbanization of European Communities*; 1 year; \$3,000
- Verne F. Ray; *Bilateral Kinship Among Canadian Eskimos*; 1 year; \$5,000
- Melford E. Spiro; *Cultural-Functional Relationships in Burma*; 18 months; \$31,500
- Melford E. Spiro; *Ideology and Personality Development in Burma*; 1 year; \$10,000
- James B. Watson; *Dynamics and Micro-evolution of a Human Community*; 2 years; \$40,000
- WICHITA FOUNDATION, INC., Taos, N. Mex.; Fred Wendorf; *Late Pleistocene and Early Recent Deposits of New Mexico*; 1 year; \$15,700
- UNIVERSITY OF WISCONSIN, Madison; David A. Baerrels; *Archaeological Investigations at Oawaca*; 1 year; \$8,200
- Chester S. Chard; *Archaeological Investigation of Howard Pass, Alaska*; 2 years; \$15,400
- William S. Laughlin and William G. Reeder; *Aleut-Konyag Prehistory*; 1 year; \$30,000
- YALE UNIVERSITY, New Haven, Conn.; Nicholas C. Bodman; *Tibeto-Burman Languages*; 1 year; \$6,400
- ASTRONOMY**
- AMHERST COLLEGE, Amherst, Mass.; Robert H. Koch and Albert P. Linnell; *Eclipsing Binaries*; 2 years; \$31,000
- AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS, Cambridge, Mass.; Margaret W. Mayall; *Compilation and Publication of Visual Observations of Long Period Variable Stars*; 2 years; \$20,000
- UNIVERSITY OF ARIZONA, Tucson; Gerard P. Kuiper; *Stars and Stellar Systems*; 18 months; \$21,600
- Gerard P. Kuiper; *Statistical Studies of Faint Asteroids*; 1 year; \$10,000
- ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY, INC., Tucson, Ariz.; James M. Miller; *Site Survey in Chile*; 1 year; \$74,800
- CALIFORNIA INSTITUTE OF TECHNOLOGY; Pasadena; Guido Munch; *Motions in the Atmospheres of Red Giant Stars*; 1 year; \$13,800

- Fritz Zwicky; *Construction of Catalogue of Galaxies and of Clusters of Galaxies*; 2 years; \$25,320
- Fritz Zwicky; *Supernova Search*; 2 years; \$29,800
- Fritz Zwicky; *Faint Blue Stars of the Humaeson-Zwicky Types*; 2 years; \$19,900
- UNIVERSITY OF CALIFORNIA, Berkeley; George Wallerstein; *Abundances of the Elements in K Giant Stars*, 1 year; \$13,000
- A. E. Whitford; *Application of a Pressure-Scanning Fabry-Perot Interferometer to High Resolution Stellar Spectroscopy*; 1 year; \$20,700
- CASE INSTITUTE OF TECHNOLOGY, Cleveland, Ohio; S. W. McCusky; *Low Dispersion Stellar Spectroscopy*; 1 year; \$30,000
- UNIVERSITY OF CHICAGO, Ill.; W. A. Hiltner; *Use of Image Tube for Astronomical Photography and Spectroscopy*; 1 year; \$18,600
- Peter Meyer; *Composition, Energy Spectrum, and Intensity of the Primary Cosmic Radiation as a Function of Time*; 1 year; \$75,000
- Kevin H. Prendergast and Richard H. Miller, Williams Bay, Wis.; *Physical Properties of Extragalactic Nebulae*; 1 year; \$28,900
- G. Van Biesbroeck; *Astrometric Investigations*; 1 year; \$16,000
- UNIVERSITY OF COLORADO; Boulder; George Gamow; *Properties of Spherical and Elliptical Galaxies*; 1 year; \$7,300
- Harold Zirin; *Research in Solar Magnetic Fields at the Crimean Astrophysical Observatory*; 1 year; \$6,300
- CORNELL UNIVERSITY, Ithaca, N.Y.; Thomas Gold; *Theoretical Work in Cosmology*; 6 months; \$6,600
- UNIVERSITY OF FLORIDA, Gainesville; Alex G. Smith and T. D. Carr; *Radio Observations of Jupiter and Saturn from Chile*; 2 years; \$49,200
- GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta; Maurice W. Long; *Submillimeter Wave Astronomy*; 1 year; \$38,900
- HARVARD UNIVERSITY, Cambridge, Mass.; David Layzer; *The Spatial Distribution of Galaxies and Radio Sources*; 1 year; \$14,400
- David Layzer; *Atomic Energy Levels and Transition Probabilities*; 1 year; \$65,100
- Donald H. Menzel; *Procurement of Machine Shop Equipment*; 6 months; \$32,400
- Fred L. Whipple; *Harvard Radio Meteor Project*; 1 year; \$175,000
- UNIVERSITY OF ILLINOIS, Urbana; Pierre R. Demarque; *The Influence of Chemical Composition on Stellar Evolution*; 2 years; \$14,450
- Ivan R. King; *Structure of Globular Clusters*; 1 year; \$3,100
- INDIANA UNIVERSITY FOUNDATION, Bloomington; John B. Irwin; *Analysis of Photoelectric Observations of Cepheids*; 1 year; \$4,700
- Marshal H. Wrubel; *Solution of Astrophysical Problems with an Electronic Computer*; 3 years; \$33,100
- UNIVERSITY OF MICHIGAN, Ann Arbor; William E. Howard, III; *Radio Astronomy Source Spectral Catalogue*; 1 year; \$7,700
- George Makhov; *Development and Construction of a Radio Astronomy Maser Radiometer*; 8 months; \$100,000
- Orren C. Mohler; *Solar Flare Patrol—1961*; 1 year; \$24,100
- MOUNT HOLYOKE COLLEGE, South Hadley, Mass.; Kenneth M. Yoss; *Determination of Absolute Magnitudes for 'Weak ON' Stars*; 2 years; \$24,700
- NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL, Washington, D.C.; G. M. Clemence; *Support of Astrometric Research in the Southern Hemisphere*; 2 years; \$25,000
- John S. Coleman; *NAS-NRO Committee on Line Spectra of the Elements*; 2 years; \$8,800
- G. D. Meld and Hugh Odishaw; *ICSU Committee on Space Research (COSPAR)*; 1 year; \$10,000
- UNIVERSITY OF NEW MEXICO, Albuquerque; Victor H. Regener; *Zodiacal Light*; 1 year; \$30,000
- OHIO STATE UNIVERSITY RESEARCH FOUNDATION, Columbus; John D. Kraus; *Completion of the 360-Foot Standing-Parabola, Tilttable-Flat-Sheet-Reflector, Radio Telescope*; 1 year; \$34,500
- Walter E. Mitchell, Jr.; *Photometric Atlas of the Solar Spectrum*; 1 year; \$18,500
- UNIVERSITY OF PENNSYLVANIA, Philadelphia; Frank B. Wood; *A Survey on Suggested Sites in New Zealand as to Their Suitability for Astronomical Research*; 18 months; \$26,400
- Frank B. Wood; *Multicolor Observations of Selected Eclipsing Variables*; 2 years; \$21,700
- POMFRET SCHOOL, Pomfret, Conn.; James R. McCullough; *Photoelectric Search for Ultra-Short-Period Variable Stars*; 2 years; \$6,800
- PRINCETON UNIVERSITY, Princeton, N.J.; Martin Schwarzschild; *High Altitude Astronomy*; 2 years; \$602,000
- RENSSELAER POLYTECHNIC INSTITUTE, Troy, N.Y.; J. Mayo Greenberg; *The Scattering of Light by Small Particles*; 1 year, \$30,500
- Alan S. Meltzer; *Astronomical Data Pertaining to Extinction and Polarization by Non-Spherical Particles*; 1 year; \$13,800
- SMITHSONIAN INSTITUTION, Washington, D.C.; Charles A. Whitney; *Stellar Atmospheres*; 2 years; \$20,000
- SWARTHMORE COLLEGE, Swarthmore, Pa.; Peter van de Kamp; *Astrometric Study of Nearby Stars*; 2 years; \$28,800
- UNIVERSITY OF TEXAS, Austin; Gerard H. de Vaucouleurs; *Photometric Studies of Bright Galaxies*; 1 year; \$16,200
- Harold L. Johnson; *Astrophysics Dealing with Infra-Red Photometry*; 2 years; \$30,000
- U.S. DEPARTMENT OF THE NAVY, OFFICE OF NAVAL RESEARCH, Washington, D.C.; Wayne C. Hall; *Laboratory High Temperature Spectroscopy*; 1 year; 75,000
- VANDERBILT UNIVERSITY, Nashville, Tenn.; Robert H. Hardle; *Galactic Structure from Stellar Associations*; 1 year; \$15,300
- UNIVERSITY OF WISCONSIN, Madison; C. M. Huffer; *Computation of Elements of Eclipsing Binary Stars by High-Speed Computing Machines*; 1 year; \$3,000
- John S. Mathis; *Theoretical Models of Evolving Stars*; 1 year; \$6,500
- Donald E. Osterbrock; *Photoelectric Photometry of Comets and Nebulae*; 1 year; \$10,000

YALE UNIVERSITY, New Haven, Conn.; Harlan J. Smith and James N. Douglas; *Planetary Non-thermal Radio Emission*; 1 year; \$63,000

ATMOSPHERIC SCIENCES

UNIVERSITY OF ALASKA, College; T. Neil Davis and M. Suglura; *Continuation of Studies of Auroral Morphology*; 2 years; \$62,200

C. T. Elvey; *The Role of Height in Auroral Spectroscopy—Part II—Analysis*; 13 months; \$108,000

Harold Leinbach, Jr.; *Inospheric Absorption, Cosmic Noise Method*; 2 years; \$158,000

Masahisa Suglura; *Morphology of Geomagnetic Pulsations in the Auroral Zone*; 2 years; \$37,300

UNIVERSITY OF ARIZONA, Tucson; A. Richard Kassander, Jr. and Louis J. Battan; *Experimental Pulse Doppler Radar for Cloud Physics*; 3 years; \$200,000

UNIVERSITY OF CALIFORNIA, Berkeley; Shih-Kung Kao; *Diffusion of Particles in the Upper Atmosphere*; 3 years; \$67,500

Samuel Silver; *Radioastronomical and Upper Atmosphere Studies in the Microwave Region*; 2 years; \$100,000

Jacob, Bjerknes, Los Angeles; *California Rainfall Processes*; 3 years; \$151,000

W. Lawrence Gates, Los Angeles; *Analysis of Dynamic Models of the Atmosphere*; 2 years; \$43,700

Yale Mintz, Los Angeles; *Numerical Studies of the Planetary Circulation*; 2 years; \$82,800

Morris Nelburger, Los Angeles; *Growth of Ice Crystals and Cloud Drops*; 3 years; \$99,100

UNIVERSITY OF CHICAGO, Illinois; Kaare Pedersen and Sverre Petterssen; *Numerical Prediction Model with Heat Sources and Sinks*; 18 months; \$48,800

COLORADO STATE UNIVERSITY RESEARCH FOUNDATION, Fort Collins; Lewis O. Grant; *Snowfall and the Effects of Cloud Seeding on Snowfall in the Colorado Rockies*; 1 year; \$5,000

Lewis O. Grant; *Artificial Ice Nuclei Over the Rocky Mountains*; 2 years; \$65,000

Richard A. Schleusener; *Hail Clouds and Their Environment*; 1 year; \$19,400

UNIVERSITY OF COLORADO, Boulder; William A. Rense; *Theoretical Physics of Upper Air and Solar Atmosphere*; 2 years; \$51,000

DARTMOUTH COLLEGE, Hanover; Millett G. Morgan; *Synoptic Whistler Studies Along the E^h Geomagnetic Meridian*; 1 year; \$46,000

FLORIDA STATE UNIVERSITY, Tallahassee; Thomas Gleeson; *Predictability in Meteorology*; 3 years; \$32,100

FRANKLIN INSTITUTE, Philadelphia, Pa.; Martin A. Pomerantz; *Time Variations of the Primary Cosmic Radiation Near the North Geomagnetic Pole*; 1 year; \$13,200

GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta; Howard D. Edwards; *Shock Wave Phenomenon in the Upper Atmosphere*; 3 years; \$69,000

UNIVERSITY OF HAWAII, Honolulu; Mariano A. Estoque; *Theoretical Studies of Tropical Cyclones and Related Disturbances*; 2 years; \$79,100

UNIVERSITY OF IDAHO, Moscow; J. S. Kim; *Auroral Radar Echoes and Airglow*; 2 years; \$45,700

UNIVERSITY OF ILLINOIS, Urbana; Glenn E. Stout, Richard G. Semonin, and Donald W. Staggs; *Cloud Electrification Studies in Illinois*; 2 years; \$134,200

JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; George S. Benton; *Streakiness in Rotating and Stratified Fluid Systems*; 3 years; \$82,600

KANSAS UNIVERSITY ENDOWMENT ASSOCIATION, Lawrence; Ferdinand C. Bates; *Dynamics of Great Plains Thunderstorms*; 2 years; \$59,000

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge; Hurd C. Willett; *Relation of Climatic Trends and Atmospheric Circulation to Solar Activity*; 2 years; \$32,900

UNIVERSITY OF MICHIGAN, Ann Arbor; Donald J. Portman; *Atmospheric Turbulence with Optical Techniques*; 3 years; \$150,400

UNIVERSITY OF MINNESOTA, Minneapolis; Alfred O. C. Nier; *Study of Composition of Upper Atmosphere with Rocket-Borne Magnetic Mass Spectrometers*; 1 year; \$42,000

John R. Winckler and Edward P. Ney; *High Altitude Balloon Monitoring for Cosmic Rays and Solar Terrestrial Phenomena*; 7 months; \$96,000

UNIVERSITY OF MISSOURI, Columbia; Wayne L. Decker; *Analysis of Rain Gage Records of The University of Chicago Cumulus Cloud Research Project*; 1 year; \$3,200

James L. Kassner, Jr.; *A Systematic Study of Some Recent Developments in Cloud Chamber Techniques*; 2 years; \$22,300

NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL, Washington, D.C.; S. D. Cornell; *Support of the Geophysics Research Board*; 2 years; \$98,400

John R. Sievers; *Activities of the Committee on Atmospheric Sciences*; 1 year; \$36,800

John R. Sievers; *Support for the Committee on Atmospheric Sciences*; 1 year; \$69,080

NEBRASKA STATE TEACHERS COLLEGE, Chadron; Lyle V. Andrews; *Physical Study of Hail Suppression*; 2 years; \$14,200

UNIVERSITY OF NEBRASKA, Lincoln; Robert L. Chasson; *Cosmic Ray Intensity Variations Deep in the Atmosphere*; 3 years; \$54,800

UNIVERSITY OF NEVADA, Reno; Wendell A. Mordy and Richard C. Sill; *Experiments in Solidification and Melting of Water*; 2 years; \$52,100

UNIVERSITY OF NEW HAMPSHIRE, Durham; John A. Lockwood; *Neutron Intensity-Time Variations of Cosmic Radiation*; 1 year; \$4,000

UNIVERSITY OF NEW MEXICO, Albuquerque; Victor H. Regener; *Time Variation of Cosmic Radiation*; 2 years; \$31,300

NEW YORK UNIVERSITY, N.Y., N.Y.; Ben Davidson, Edwin Fisher and James E. Miller; *Interactions Between Microscale and Larger Scale Meteorological Processes*; 3 years; \$198,200

Serge A. Korff; *Operation of Cosmic Ray Neutron Monitor in Alaska*; 2 years; \$57,000

Jerome Spar; *Feasibility of Artificial Modification of Tropical Storms*; 3 years; \$221,000

UNIVERSITY OF OKLAHOMA RESEARCH INSTITUTE, Norman; Walter J. Saucier; *Stratospheric Patterns*; 2 years; \$52,700

Eugene M. Wilkins; *Electro-Dynamic and Aerodynamic Processes in Tornadoes*; 2 years; \$29,900

UNIVERSITY OF ST. THOMAS, Houston, Tex.; John C. Freeman, Jr.; *Theoretical Studies of Atmospheric Cross Sections*; 1 year; \$4,400

STANFORD UNIVERSITY, Stanford, Calif.; R. A. Helliwell; *Synoptic Study of Whistlers and VLF Emissions*; 1 year; \$33,600

STATE UNIVERSITY OF NEW YORK, Albany; Vincent J. Schaefer; *Field Research Seminar*; 1 year; \$9,600

U.S. NAVAL RESEARCH LABORATORY, Washington, D.C.; H. Friedman; *Upper Atmosphere Studies with Rocket-Borne Magnetic Mass Spectrometers*; 1 year; \$107,860

U.S. DEPARTMENT OF THE NAVY, OFFICE OF NAVAL RESEARCH, Washington, D.C.; Bernard Vonnegut and Charles B. Moore; *Cloud Electrification Studies*; 1 year; \$66,500

U.S. WEATHER BUREAU, U.S. DEPARTMENT OF COMMERCE, Washington, D.C.; Helmut E. Landsberg; *Atmospheric Profiles*; 1 year; \$5,000

F. W. Reichelderfer; *Specialized Upper-Air Observations at Santa Monica and Point Arguello*; 2 years; \$14,500

R. H. Simpson; *Weather Modification in Severe Storms*; 3 years; \$142,700

Sidney Teweles; *IGY and IGO Stratospheric Analysis and Research*; 18 months; \$60,100

UNIVERSITY OF UTAH, Salt Lake City; Shih-Kung Kao; *Diffusion of Particles in the Upper Atmosphere*; 2 years; \$31,000

WASHINGTON STATE UNIVERSITY, Pullman; Lloyd B. Craine and Glen L. Hower; *Coincidental Features of Natural Radio Emissions*; 3 years; \$65,000

Ottis W. Riechard; *Statistical Methodology and Climatological Studies in Weather Modification Activities*; 2 years; \$50,000

UNIVERSITY OF WASHINGTON, Seattle; Robert G. Fleagle; *Diabatic Effects on Atmospheric Motions*; 3 years; \$27,000

WHITWORTH COLLEGE, Spokane, Wash.; William G. Wilson; *Electric Charge Separation During Freezing*; 3 years; \$18,600

COLLEGE OF WILLIAM AND MARY, Williamsburg, Va.; James D. Lawrence, Jr.; *Correlation of Radio Star Scintillation with Scintillation of Satellite Signals*; 2 years; \$40,000

YALE UNIVERSITY, New Haven, Conn.; William E. Reifsnnyder; *The Energy Budget of a Forest*; 4 years; \$94,200

Peter P. Wegener; *Rate of Condensation of Water Vapor in the Metastable State*; 1 year; \$14,200

CHEMISTRY

AMHERST COLLEGE, Amherst, Mass.; Ralph A. Beebe; *Chemisorption and Physical Adsorption of Gases on Solid Surfaces*; 3 years; \$39,700

UNIVERSITY OF ARIZONA, Tucson; Leslie S. Forster; *Spectra of Transition Metal Complexes at Low Temperatures*; 3 years; \$22,000

Roy A. Keller; *Comparison of the Chromatography of Hindered and Unhindered Biphenyls*; 2 years; \$20,900

Carl S. Marvel; *Novel Polymerization Methods and Relation Between Structure and Properties of High Polymers*; 2 years; \$28,400

AUGSBURG COLLEGE AND THEOLOGICAL SEMINARY, Minneapolis, Minn.; John R. Holum; *Participation of Neighboring Carbonyl in Nucleophilic Displacement of Halogen*; 2 years; \$6,300

BOSTON UNIVERSITY, Mass.; Lowell V. Coulter; *Thermodynamic Properties of Beta-Quinol Clathrates*; 2 years; \$27,400

BRANDEIS UNIVERSITY, Waltham, Mass.; Saul G. Cohen; *Chemistry of Free Radicals in Solution*; 3 years; \$46,800

Robert Stevenson; *Constitution and Chemistry of Quassin and Related Products*; 3 years; \$37,000

Thomas R. Tuttle, Jr.; *Application of Magnetic Resonance to Chemical Problems*; 2 years; \$60,800

BRIGHAM YOUNG UNIVERSITY, Provo, Utah; K. LeRol Nelson; *Low-Temperature Kinetics in Aprotic Solvents*; 2 years; \$23,800

BROWN UNIVERSITY, Providence, R.I.; John Ross; *Viscosity of Gases*; 6 months; \$2,100

UNIVERSITY OF BUFFALO, Buffalo, N.Y.; Peter T. Lansbury; *New Reactions of Lithium Aluminum Hydride in Pyridine*; 2 years; \$23,400

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena; John D. Roberts; *Structures and Reaction Mechanisms of Organic Compounds*; 3 years; \$82,000

UNIVERSITY OF CALIFORNIA, Berkeley; Richard George Brewer; *Optical Spectroscopy of High Temperature Molecules*; 2 years; \$20,100

William G. Dauben; *Structural Studies in Alicyclic Systems*; 3 years; \$65,900

W. F. Glauque; *Thermodynamic and Magnetic Properties at Low Temperatures*; 1 year; \$120,000

Joel H. Hildebrand; *Properties and Solubility Relations of Nonelectrolytes*; 1 year; \$12,700

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Ross L. Shoger; *Some Properties of the Chick Node*; 2 years; \$5,800

COLORADO STATE UNIVERSITY RESEARCH FOUNDATION, Fort Collins; Herman Meyer; *Morphological Study of the Brain of *Otelus**; 2 years; \$8,400

UNIVERSITY OF COLORADO, Boulder; Douglas E. Kelly; *Cellular Differentiation of the Amphibian Pineal Body*; 3 years; \$8,200

Stuart W. Smith; *Purine: Pyrimidine Ratios of Differentiating Cells*; 1 year; \$7,500

COLUMBIA UNIVERSITY, New York, N.Y.; L. C. Dunn and Dorothea Bennett; *Developmental Effects of Genetic Factors in Mammals*; 2 years; \$32,900

Betty C. Moore and Arthur W. Pollister; *DNA, RNA, and Proteins in Early Differentiation*; 2 years; \$18,100

DARTMOUTH COLLEGE, Hanover, N.H.; William W. Ballard; *Morphogenetic Movements in Fish Embryos*; 2 years; \$39,200

EMORY UNIVERSITY, Atlanta Ga.; Geoffrey H. Bourne; *Enzyme Activity in Cells of Young and Old Animals*; 1 year; \$16,600

FLORIDA STATE UNIVERSITY, Tallahassee; George W. Kett, Jr.; *Control of Growth and Differentiation in Plants*; 2 years; \$19,100

GRINNELL COLLEGE, Grinnell, Iowa; Guillermo Mendoza; *Reproduction in the Goodidae*; 2 years; \$11,200

HAVERFORD COLLEGE, Haverford, Pa.; Elizabeth Ufford Green; *RNA Differentiation During Growth and Development*; 2 years; \$21,000

HOWARD UNIVERSITY, Washington, D.C.; John P. Rier; *Organization of Vascular Tissues in Plants*; 2 years; \$25,600

UNIVERSITY OF IDAHO, Moscow; Lorin W. Roberts; *Differentiation of Wound-Xylem Cells*; 2 years; \$9,800

UNIVERSITY OF ILLINOIS, Urbana; Herbert Stern; *Metabolic Regulation of Nuclear Division*; 3 years; \$63,100

JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Konrad Keck; *Systems Controlling Protein Specificity in Acetabularia*; 3 years; \$44,300

KENYON COLLEGE, Gambier, Ohio; Francis W. Yow; *Morphogenesis in *Euplotes Eury-stomus**; 2 years; \$7,400

LONG BEACH STATE COLLEGE FOUNDATION, Long Beach, Calif.; James H. Menees; *Morphogenesis and Differentiation in Insect Embryos*; 2 years; \$14,000

LOUISIANA STATE UNIVERSITY AND AGRICULTURAL AND MECHANICAL COLLEGE, Baton Rouge; Willie M. Reams, Jr.; *Differentiation of Pigment Cells in the PET Mouse*; 2 years; \$13,700

UNIVERSITY OF LOUISVILLE, Ky.; Calvin A. Lang; *Respiratory Enzyme Development in the Mammal*; 2 years; \$40,900

LOYOLA UNIVERSITY, Chicago, Ill.; Harry Wang; *Size and Growth Rate of Feathers*; 2 years; \$8,000

LUBBOCK CHRISTIAN COLLEGE, Lubbock, Tex.; Norman Hughes; *Early Development of *Scaphiopus Bombifrons* and *Scaphiopus Hammondi**; 2 years; \$5,200

MARQUETTE UNIVERSITY, Milwaukee, Wis.; W. F. Millington; *Shoot Development in Perennial Plants*; 3 years; \$32,000

Walter G. Rosen and Kenneth A. Siegemund; *Growth and Chemotropism of Pollen Tubes*; 2 years; \$31,800

John W. Saunders, Jr.; *Ectoderm-Mesoderm Interactions in Limb Morphogenesis*, 5 years; \$60,900

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge; Eugene Bell; *Limb Development and Cellular Differentiation*; 2 years; \$103,000

MERCY INSTITUTE FOR BIOMEDICAL RESEARCH, Denver, Colo.; V. L. van Breemen; *Interfibrillar Membrane Systems in Striated Muscle*, 1 year; \$44,600

MIAMI UNIVERSITY, Oxford, Ohio; Charles Helmsch; *Developmental Root Anatomy*; 1 year; \$1,700

UNIVERSITY OF MICHIGAN, Ann Arbor; P. B. Kaufman; *Mechanism of Stem Elongation in Grasses*; 2 years; \$18,400

UNIVERSITY OF MINNESOTA, Minneapolis; Norman S. Kerr; *Developmental Biology of the True Slime Mold, Didymium Nigripes*; 2 years; \$37,400

MISSOURI BOTANICAL GARDEN, St. Louis; Norton H. Nickerson; *Growth Pattern Changes in Maize*; 1 year; \$7,100

NEW YORK BOTANICAL GARDEN, New York, N.Y.; Richard M. Klein; *Interaction of Ultraviolet and Visible Radiation on Plant Growth*, 3 years; \$20,600

UNIVERSITY OF NORTH CAROLINA, Chapel Hill; Max H. Hommersand; *Cellular Differentiation in Chlamydomonas*; 2 years; \$24,300

UNIVERSITY OF NORTH DAKOTA, Grand Forks, John J. Taylor; *Electron Microscopic Study of Developing Epithelium*; 3 years; \$58,000

NORTHWESTERN UNIVERSITY, Evanston, Ill.; Shirley C. Tucker; *Ontogenetic Basis for Whorls*; 2 years; \$20,800

Joan M. Whitten; *Insect Growth and Metamorphosis*; 2 years; \$18,800

UNIVERSITY OF OREGON, Eugene; Sanford S. Tepfer; *Developmental Changes in Apices of Flowering Plants*; 3 years; \$33,800

UNIVERSITY OF OREGON MEDICAL SCHOOL, Portland; R. L. Bacon; *Immunoelectrophoretic Analysis of Echinoderm Development*; 2 years; \$23,500

UNIVERSITY OF PALERMO, Palermo, Italy; Alberto Monroy; *Ontogenesis of Hemoglobin in the Chick*; 3 years; \$26,300

UNIVERSITY OF PENNSYLVANIA, Philadelphia; Ralph O. Erickson; *Cell Division and Cell Growth in Higher Plants*; 3 years; \$31,700

Howard Holtzer; *Studies of Chondrogenesis and Myogenesis*; 5 years; \$70,500

Lionel Jaffe; *Orientation of Cell Growth by Polarized Radiant Energy*; 2½ years; \$26,800

UNIVERSITY OF PITTSBURGH, Pa.; Joan Elger Gottlieb; *Study of Factors in Normal Shoot Growth of Vascular Plants*; 1½ years; \$9,500

PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; J. S. Lovett; *Morphogenesis in the Aquatic Fungus Rhizoglyphis*; 2 years; \$19,000

F. H. Wilt; *Molecular Biology of Differentiation*; 3 years; \$75,400

S. N. Postlethwait and O. E. Nelson; *Characterization of Normal Development in Maize*; 3 years; \$44,900

REED COLLEGE, Portland, Oreg.; Margaret J. Watkins; *Measurement of Chromosomal Mass During Cell Division*; 2 years; \$11,000

RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK, Albany; Wilfred A. Cote, Jr.; *Syracuse; Ultrastructure of Wood Cells*; 2 years; \$7,800

Frederick H. Truscott; *Morphogenesis in the Genus Cuscuta*; 3 years; \$9,200

UNIVERSITY OF ROCHESTER, N.Y.; William B. Muchmore; *Immunochemical Studies of Muscle Development*; 2 years; \$23,700

ROCKEFELLER INSTITUTE, New York, N.Y.; Sam Granick; *Studies Toward the Growth and Differentiation of Chloroplasts in Vitro*; 2 years; \$34,400

Keith R. Porter; *Wall Formation in Cells of Meristematic Plant Tissue*; 1 year; \$17,300

Ulrich Naf; *Chemical Nature and Mode of Action of a Specific Inducer of the Antheridium in Ferns*; 3 years; \$60,100

UNIVERSITY OF SASKATCHEWAN, CANADA; Taylor A. Steeves; *Leaf Development in Vascular Plants*; 1 year; \$5,900

SMITH COLLEGE, Northampton, Mass.; David A. Haskell; *Origin and Development of Growth Centers in the Plant Embryo*; 2 years; \$18,500

Elizabeth S. Hobbs; *Argentophilic Structures of Certain Ciliated Protozoa*; 1 year; \$3,000

UNIVERSITY OF SOUTH FLORIDA, Tampa; Jerome S. Krivanek; *Chemical Analyses of the Developing Slime Mold, Dictyostelium discoideum*; 1 year; \$13,500

UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles; John W. Mehl; *Proteins in Cytoplasmic Cleavage*; 2 years; \$16,900

SOUTHERN ILLINOIS UNIVERSITY, Carbondale; Margaret Kaelser; *Proportions of Anatomical Components in Plant Structures*; 2 years; \$3,000

STANFORD UNIVERSITY, Stanford Calif.; Donald L. Stilwell, Jr.; *Growth, Deformities and Vascularization of the Vertebral Column*; 2 years; \$25,900

STATE UNIVERSITY OF SOUTH DAKOTA, Vermillion; Donald G. Dunlap; *Comparative Morphology of Hind Limb Muscles in Saltentia*; 2 years; \$10,900

SYRACUSE UNIVERSITY, N.Y.; Thomas S. Argyris; *Mechanism of Hair Growth Stimulation During Hair Regeneration*; 3 years; \$43,800

TEMPLE UNIVERSITY, Philadelphia, Pa.; Mann-Chiang Niu; *Induction of Specific Protein Synthesis*; 1 year; \$25,600

Mann-Chiang Niu; *Induction of Specific Protein Synthesis by RNA*; 2 years; \$36,700
TEXAS AGRICULTURAL EXPERIMENT STATION, College Station; J. Nevin Weaver; *Nutritional Factors in Dimorphic Differentiation of the Honeybee*; 2 years; \$17,700

UNIVERSITY OF VIRGINIA, Charlottesville; James E. Kindred; *Histological Studies of Vertebrate Blood Cells*; 1 year; \$3,200

WABASH COLLEGE, Crawfordville, Ind.; C. Francis Shutts; *In Vitro Embryogenesis in Angiosperms*; 3 years; \$12,800

UNIVERSITY OF WASHINGTON, Seattle; Alex J. Haggis; *Study of DNA of Selected Cells of Rana pipiens Embryos*; 2 years; \$20,700

Arthur H. Whiteley; *Developmental Physiology of Marine Invertebrates*; 4 years; \$76,000

WASHINGTON UNIVERSITY, St. Louis, Mo.; R. Levi-Montalcini, V. Hamburger, and P. Angeletti; *Analysis of a Nerve Growth-Promoting Agent and its Antiserum on the Sympathetic System of Mammals*; 3 years; \$132,400

WAYNE STATE UNIVERSITY, Detroit, Mich.; Werner G. Helm; *Ontogenesis of Mammalian Serum Proteins*; 2 years; \$23,300

WELLESLEY COLLEGE, Wellesley, Mass.; Alice Louise Bull; *Effect of Genetic Disturbances on Drosophila Development*; 2 years; \$8,200

WESLEYAN UNIVERSITY, Middletown, Conn.; Earl D. Hanson; *Role of Ribonucleic Acid in Nucleocytoplasmic Interaction*; 2 years; \$18,200

S. Meryl Rose; *Specific Inhibition during Development*; 1 year; \$14,900

WILKES COLLEGE, Wilkes-Barre, Pa.; Francis J. Michellini; *Analysis of Leaf Constituents During Development*; 2 years; \$11,800

WINTHROP COLLEGE, Rock Hill, S.C.; John A. Freeman; *Differential Functional Longevity of Gametes*; 2 years; \$3,200

UNIVERSITY OF WISCONSIN, Madison; Ray F. Evert; *Phloem Structure in Woody Dicotyledons*; 2 years; \$20,600

YALE UNIVERSITY, New Haven, Conn.; Donald F. Poulson; *Physiological and Developmental Studies on Drosophila*; 3 years; \$60,600

Ian K. Ross; *Heterothallism and Homothallism in the Myzomyces*; 1 year; \$3,000

Ian M. Sussex; *Morphogenesis in the Shoot of Vascular Plants*; 3 years; \$25,200

J. P. Trinkaus; *Histogenetic and Contact Specificity of Differentiating Cells*; 2 years; \$28,000

YESHIVA UNIVERSITY, N.Y., N.Y.; Lois J. Smith; *Mechanisms of Normal and Abnormal Development*; 2 years; \$10,800

EARTH SCIENCES

GERALD MARTIN, Richmond; *Glacial and Inter-Glacial Stratigraphy of the Alps for the Purpose of Comparison with that of the Rocky Mountains*; 11 months; \$11,090

AMERICAN COMMITTEE FOR THE WEIZMANN INSTITUTE OF SCIENCE, N.Y., N.Y.; C. L. Pekeris, Rehovoth, Israel; *Determination of the Tides in the Real Oceans*; 2 years; \$238,700

AMERICAN MUSEUM OF NATURAL HISTORY, New York, N.Y.; Brian H. Mason; *The Mineralogy and Chemical Composition of Stony Meteorites*; 3 years; \$30,130

UNIVERSITY OF ARIZONA, Tucson; Paul Damon; *Geochemical Dating*; 2 years; \$34,800

UNIVERSITY OF ARKANSAS, Fayetteville; Paul K. Kuroda; *Trace Elements in Meteorites*; 2 years; \$57,000

BRIGHAM YOUNG UNIVERSITY, Provo, Utah; Marlon T. Millett; *Glacier Termini Study: Southern Alaska 1961*; 3 months; \$9,500

BYRN MAWR COLLEGE, Pa.; Edward H. Watson; *X-ray Diffractometer Unit*; 1 year; \$6,300

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena; Egon T. Degens; *Geochemical Investigations of Some Organic Constituents in Sediments*; 1 year; \$9,100

Richard H. Jahns; *Pegmatite Genesis Through Controlled Laboratory Synthesis*; 1 year; \$8,160

Claire C. Patterson; *Construction of a Mass Spectrometer*; 1 year; \$33,600

Robert P. Sharp; *Glaciological Research on Valley Ice Streams*; 2 years; \$18,400

UNIVERSITY OF CALIFORNIA, Berkeley; G. H. Curtis and J. F. Evernden; *Potassium-Argon Dating of Minerals and Rocks*; 2 years; \$55,900

Albert E. J. Engel; *Variations in the Properties of Metamorphic Rocks and Constituent Minerals as a Function of the Kind and Degree of Metamorphism*; 3 years; \$31,000

Herbert E. Hawkes; *Trace Element Dispersion in Igneous Rocks*; 2 years; \$21,000

J. W. Johnson and Parker D. Trask; *Dynamics of Nearshore Sediment Movement*; 2 years; \$75,000

Charles Meyer and William S. Fyfe; *Norelco Electron Probe*; 1 year; \$52,300

Margaret K. Robinson; *Computation of Seasonal Variation in Sea Temperature from Incomplete Time Series*; 1 year; \$14,000

Hans E. Suess; *Natural Radiocarbon Measurements*; 3 years; \$74,200

Francis J. Turner; *Fabrics of Deformed Rocks and Minerals*; 2 years; \$29,650

Stanley H. Ward; *Polarizations of Natural Magnetic Fields by Major Geologic Structures*; 1 year; \$15,000

Emile A. Pessagno, Jr., Davis; *Study of the Upper Cretaceous Planktonic Foraminifera of the Gulf Coastal Plain*; 3 years; \$16,500

Harmon Craig, La Jolla; *Isotopic Oceanography and Meteorology*; 2 years; \$55,200

Robert L. Fisher, Richard P. Von Herzen, William R. Riedel and Gustaf Arrhenius, La Jolla; *Acquisition and Modification of Sonar Pingers*; 1 year; \$13,885

John A. Knauss and John D. Isaacs, La Jolla; *Study of the Cromwell Current*; 1 year; \$53,400

Francis P. Shepard, La Jolla; *Submarine Canyon Charting*; 3 years; \$25,800

Tjeerd H. Van Andel and Joseph R. Murray, La Jolla; *Sediments and Post-Pleistocene History of Continental Shelves*; 2 years; \$50,000

William G. Van Dorn, La Jolla; *Long Period Wave Stations on Pacific Islands*; 2 years; \$59,700

W. S. Wooster, La Jolla; *Investigations of the Peru Current System*; 1 year; \$56,000

UNIVERSITY OF CALIFORNIA, Los Angeles; David T. Griggs, Los Angeles; *Plasticity at High Temperatures and Pressures*; 2 years; \$51,500

George W. Wetherill, Los Angeles; *Geochronology Using Radioisotopes*; 2 years; \$66,150

W. F. Libby, Los Angeles; *Radiocarbon Dating Method and New Dating Methods of Longer Time Scale*; 3 years; \$70,000

Richard V. Fisher, Santa Barbara; *Physical and Biostratigraphic Investigation of the*

- John Day Formation, Oregon; 2 years; \$14,150
- CARNEGIE INSTITUTION OF WASHINGTON; Washington, D.C.; Merle A. Tuve; *Seismic and Gravity Studies of the Andes*; 2 years; \$40,000
- UNIVERSITY OF CHICAGO, Chicago, Ill.; Edward Anders; *Meteorite Studies*; 3 years; \$39,800
- Robert N. Clayton; *Oxygen Isotope Fractionation*; \$4,800
- Joseph V. Smith; *Amphibole, Pyroxene, and Sulfide Mineralogy*; 2 years; \$40,000
- UNIVERSITY OF CINCINNATI, Cincinnati, Ohio; William F. Jenks; *X-ray Diffractometer for the Solution of Certain Mineralogical, Petrological, and Sedimentological Problems*; 1 year; \$16,000
- UNIVERSITY OF COLORADO, Boulder; Don L. Elcher; *Cretaceous Foraminifera in the Rocky Mountain Area*; 2 years; \$8,100
- COLUMBIA UNIVERSITY, New York, N.Y.; David B. Ericson; *Lithological and Micro-paleontological Investigation of Ocean Sediment Cores*; 3 years; \$40,700
- Maurice Ewing; *Support of the Research Vessel VEMA*; 6 months; \$240,000
- James R. Helzler; *Geomagnetic Micropulsation Studies*; 18 months; \$25,000
- Jack E. Oliver; *Installation and Operation of Additional Earth Strain Meters in a Tectonically Inactive Area*; 2 years; \$43,000
- CORNELL UNIVERSITY, Ithaca, N.Y.; Phillip M. Orville; *Investigation of Feldspars by Hydrothermal Alkali Ion Exchange Techniques*; 3 years; \$32,000
- DARTMOUTH COLLEGE; Hanover, N.H.; Robert C. Reynolds, Jr.; *Salinity of Precambrian Seas*; 2 years; \$32,700
- UNIVERSITY OF DELAWARE, Newark; John J. Groot; *A Palynological Investigation of the Nonmarine Cretaceous Sediments of the Atlantic Coastal Plain*; 3 years; \$15,240
- EARLEHAM COLLEGE, Richmond, Ind.; David Telfair; *The Radioactivity of Soils and Soil Parent Materials*; 27 months; \$3,750
- FLORIDA STATE UNIVERSITY; Tallahassee; George W. Devore; *Optical Spectrographic Equipment for Geochemical Investigations of Minerals*; 1 year; \$25,000
- Takashi Ichiye; *Rotating Model Experiment on Circulation in the Gulf of Mexico*; 2 years; \$20,000
- FORDHAM UNIVERSITY, New York, N.Y.; Bartholomew Nagy; *Chromatographic Effects in Sedimentary Rocks*; 2 years; \$23,140
- Norman O. Smith and Bartholomew Nagy; *Solubility of Gases in Connate Water*; 2 years; \$21,340
- FRANKLIN AND MARSHALL COLLEGE, Lancaster, Pa.; Jacob Freedman; *Stratigraphy of the Wissahickon Schist*; 10 months; \$16,000
- UNIVERSITY OF GEORGIA, Athens; John H. Hoyt and Vernon J. Henry, Jr.; *Sedimentation, Structure, and Development of Barrier Islands*; 2 years; \$11,300
- UNIVERSITY OF HAWAII, Honolulu; G. Donald Sherman; *The Evaluation of Past Climates as Expressed in Fossil Soils*; 2 years; \$31,700
- UNIVERSITY OF HOUSTON, Tex.; Max F. Carmen, Jr.; *Petrographic Study of Alkaline Rocks in the Terlingua Area, Brewster County, Tex.*; 3 years; \$29,500
- Gene Ross Kellough; *Biostratigraphic and Paleocologic Study of Foraminifera of the Upper Midway Group in East-Central Texas*; 2 years; \$11,500
- UNIVERSITY OF ILLINOIS; Urbana; A. H. Beavers; *Characterization of Opal Phytoliths in Soils and Selected Plants*; 2 years; \$21,400
- INTERNATIONAL SEISMOLOGICAL SUMMARY, Cambridge, England; R. Stonely; *Support of the International Seismological Summary*. 5 years; \$50,000
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Ernst Cloos; *X-ray Analysis of Natural and Synthetic Minerals*; 1 year; \$15,600
- Donald W. Pritchard; *Design Study for a Catamaran Oceanographic Vessel*; 1 year; \$10,000
- UNIVERSITY OF KANSAS, Lawrence; Louis F. Dellwig; *Depositional Processes in the Salina Salt of Michigan and New York*; 2 years; \$9,400
- A. B. Leonard; *Fossil Mollusca and Seeds from Late Cenozoic Deposits of the Great Plains Region of the United States*; 3 years; \$15,900
- KENTUCKY RESEARCH FOUNDATION, Lexington; A. C. McFarlan and Edmund Nosow; *Ordovician - Mississippian Stratigraphic Problems in Kentucky and Vicinity*; 2 years; \$17,000
- LAMAR STATE COLLEGE OF TECHNOLOGY, Beaumont, Tex.; Saul Aronow; *Pimple (Mima) Mounds in the Gulf Coast Region of South-eastern Texas and Southwestern Louisiana*; 2 years; \$15,540
- LAWRENCE COLLEGE, Appleton, Wis.; William F. Read; *Meteorite Investigations in the Wisconsin Area*; 3 years; \$3,420
- LEHIGH UNIVERSITY, Bethlehem, Pa.; H. R. Gault; *X-ray Equipment for Research in Geochemistry*; 1 year; \$16,530
- UNIVERSITY OF LOUISVILLE, Ky.; James E. Conkin; *Silurian and Devonian Smaller Foraminifera of Kentucky and Southern Indiana*; 2 years; \$6,200
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge; John Hower; *Chemical Composition and Structure of Clay Minerals in Recent and Ancient Sediments*; 3 years; \$27,800
- Theodore R. Madden and Thomas Cantwell; *Application of Electromagnetic Measurements to Local and Regional Crustal Investigations*; 1 year; \$20,000
- UNIVERSITY OF MIAMI, Coral Gables, Fla.; J. Edward Hoffmeister; *Florida Coral Reef Studies*; 1 year; \$17,200
- Cesare Emiliani, Miami; *Paleotemperature Research*; 3 years; \$75,000
- Friedrich F. Koczy; *Oceanography and Deep-Sea Coring in the Caribbean*; 1 year; \$40,000
- Friedrich F. Koczy; *The Geochemistry of Radioactive Elements in the Marine Environment*; 1 year; \$27,000
- Friedrich F. Koczy; *Distribution and Vertical Transfer of Trace Elements in Tropical Waters*; 2 years; \$50,000

Friedrich F. Koczy; *Support of the Research Vessel GERDA*; 1 year; \$35,000

UNIVERSITY OF MICHIGAN, Ann Arbor; Paul L. Cloke; *A Geochemical Investigation of the Great Lakes*; 20 months; \$70,000

John A. Dorr, Jr.; *Pre-Pleistocene Fossil Vertebrates in the Nonmarine Tertiary of Alaska*; 2 years; \$16,000

James H. Zumberge; *Bottom Coring in Lake Superior*; 15 months; \$98,350

UNIVERSITY OF MINNESOTA, Minneapolis; Paul W. Gast; *Isotopes of Lead and Strontium*; \$3,900

William G. Phinney; *Chemical Equilibrium Between Coexisting Phases in Igneous and Metamorphic Rocks*; 2 years; \$16,100

D. H. Yardley; *Trace Element Distribution in a Swamp Environment*; 2 years; \$25,500

Tibor Zoltai; *Mineral Structure Determination*; 2 years; \$24,700

UNIVERSITY OF MISSOURI, Columbia; John F. Hubert; *Petrology of Deep Sea Sands from the Hudson Submarine Canyon Area, Western North Atlantic*; 2 years; \$8,300

NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL, Washington, D.C.; John N. Adkins; *Experimental Drilling in Deep Water*; 1 year; \$130,665

G. D. Meid; *Support of Coordinator, Indian Ocean Expedition*; 14 months; \$56,900

UNIVERSITY OF NEW MEXICO, Albuquerque; Roger Y. Anderson; *Climatic Cycles and Patterns in Varved Sediments*; 2 years; \$16,100

UNIVERSITY OF NORTH CAROLINA, Chapel Hill; Ralph J. McCracken, Raleigh; *Mobile Soil Organic Matter and Its Interactions with Clay Minerals and Sesquioxides*; 3½ years; \$14,700

OBERLIN COLLEGE, Oberlin, Ohio; Kathryn H. Clisby; *Pleistocene-Pliocene Stratigraphy, San Augustin Plains, New Mexico*; 3 years; \$30,500

Fred Foreman; *Pleistocene-Pliocene Stratigraphy and Chronology*; 1 year; \$1,800

OHIO STATE UNIVERSITY, Columbus; W. A. Helskanen; *Publication of the Proceedings of the Symposium Geodesy in Space Age*; 6 months; \$2,400

OHIO STATE UNIVERSITY RESEARCH FOUNDATION, Columbus; Arthur J. Brandenberger; *Mapping Glaciers in Western United States*; 1 year; \$2,230

Richard P. Goldthwait; *Structure in the Stagnant Ice of Burroughs Glacier, Glacier Bay, Alaska*; \$6,000

Richard P. Goldthwait; *Origin of Glacial Deposits in Crillon Glacier Area, Alaska*; 1 year; \$15,000

OREGON STATE COLLEGE, Corvallis; Wayne V. Burt; *Oregon Oceanographic Studies*; 1 year; \$100,000

George S. Kock; *Distribution of Ore in Metalliferous Veins*; 3 years; \$22,900

William H. Taubeneck; *Evolution of the Wallowa Mountains, Northeastern Oregon*; 2 years; \$30,000

PENNSYLVANIA STATE UNIVERSITY, University Park; Thomas F. Bates; *X-ray Amorphous Mineral Materials and Their Role in the Weathering Process*; 2 years; \$40,000

UNIVERSITY OF PENNSYLVANIA, Philadelphia; Elizabeth K. Ralph; *C-14 Measurements of Known Age Samples*; 2 years; \$22,200

PRINCETON UNIVERSITY, Princeton, N.J.; William E. Bonini; *Seismic Crustal Measurements*; 2 years; \$19,100

Harry H. Hess; *Geological and Geophysical Investigation of the Island of Hispaniola*; 2 years; \$37,440

Heinrich D. Holland; *Solubility of Calcite and Dolomite in Aqueous Solutions at Temperatures up to 400° C*; 2 years; \$29,800

Franklyn B. Van Houten; *Paleomagnetic Reversals in the Chugwater Red Beds and Iron Oxides in Red Beds as Paleomagnetic Data*; 2 years; \$16,100

UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles; K. O. Emery; *A Study of Monterey Bay and Submarine Canyon*; 2 years; \$35,300

K. O. Emery and S. C. Rittenberg; *Investigations on the Mohole Test Core*; 1 year; \$26,200

SOUTHERN METHODIST UNIVERSITY, Dallas, Tex.; James E. Brooks; *The Devonian-Mississippian Boundary Problem in North Central Utah*; 1 year; \$3,100

STANFORD UNIVERSITY, Stanford, Calif.; Colin O. Hutton; *Geology of Nevis and St. Christopher (St. Kitts)*; 3 years; \$10,900

TEXAS AGRICULTURAL AND MECHANICAL RESEARCH FOUNDATION, College Station; Richard G. Bader; *Investigation of Dissolved Organic Sorption by Minerals in Natural Waters*; 3 years; \$50,000

Richard G. Bader; *Purchase of Surface Sonar Thumper*; 1 year; \$6,000

Hugh J. McLellan; *Aid for Operating a Research Vessel for Basic Studies in Physical Oceanography and Marine Geophysics*; 1 year; \$40,000

UNIVERSITY OF TEXAS, Austin; William R. Muehlberger; *Magnetic and Gravimetric Survey of Subsurface Ouachita Fold Belt in Central Texas*; 1 year; \$2,800

UNIVERSITY OF TORONTO, Canada; G. B. Langford; *Study of the Limnology of the Great Lakes*; 3 years; \$115,000

TULANE UNIVERSITY OF LOUISIANA, New Orleans; Roy A. Macdiarmid; *The Use of Thermoluminescence as a Prospecting Guide for Hydrothermal Ore Deposits*; 2 years; \$12,240

U.S. GEOLOGICAL SURVEY, U.S. DEPARTMENT OF INTERIOR, Washington, D.C.; Thomas B. Nolan; *United States Geological Survey Cooperation in Experimental Drilling Program (Project Mohole)*; 1 year; \$3,700

U.S. DEPARTMENT OF THE NAVY, OFFICE OF NAVAL RESEARCH, Washington, D.C.; H. E. Ruble; *Committee on Oceanography of the National Academy of Science*; 1 year; \$16,500

U.S. NAVY HYDROGRAPHIC OFFICE, Washington, D.C.; E. C. Stephan; *National Oceanographic Data Center*; 1 year; \$48,000

SMITHSONIAN INSTITUTION, Washington D.C.; Edward L. Fireman; *Rare Gases in Meteorites*; 2 years; \$25,000

VIRGINIA POLYTECHNIC INSTITUTE, Blacksburg; Richard V. Dietrich; *Banded Gneisses*; 2 years; \$4,275

Grant W. Thomas; *Electrolyte Imbibition by Soils*; 3 years; \$19,000

UNIVERSITY OF WASHINGTON, Seattle; Kermit B. Bengtson; *Glaciological Studies in Glacier Bay National Monument, Alaska*; 1 year; \$4,500

P. E. Church; *Aerial Reconnaissance and Photography of Glaciers in Alaska and Western United States*; 2 years; \$31,000

Arthur W. Fairhall; *Radiocarbon Content of Sequoia Wood*; 30 months; \$24,000

R. H. Fleming and R. G. Paquette; *Anchored Telemetering Buoy*; 3 years; \$207,100

R. H. Fleming; *Leasing of Off-Campus Building for Expansion of Oceanographic Research Laboratories*; 3 years; \$10,100

Maurice Rattray, Jr.; *Continuation of Oceanographic Model Studies of Puget Sound*; 1 year; \$26,200

WASHINGTON STATE UNIVERSITY, Pullman; Ronald K. Sorem; *Mineralogical Study of Certain Manganese Oxide Ore Deposits in Washington*; 2 years; \$10,850

WASHINGTON UNIVERSITY, St. Louis, Mo.; Henry N. Andrews, Jr.; *Studies of American Paleozoic Plants*; 3 years; \$17,760

H. LeRoy Scharon; *Paleomagnetic Investigation of the St. Francois Mountains Igneous Rocks, Missouri*; 19 months; \$11,300

UNIVERSITY OF WICHITA, Wichita, Kans.; Paul Tasch; *Leonardian Conchostracans*; 1 year; \$15,000

WILLIAM MARSH RICE UNIVERSITY, Houston, Tex.; Jean-Claude de Bremaecker; *Speed of Shear Fractures*; 2 years; \$20,600

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Alfred Rupert Hall and Marie Boas Hall; *The Correspondence of Henry Oldenburg*; 2 years; \$12,000

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge; Cyril Stanley Smith; *Sources for the History of Metallurgy*; 2 years; \$5,500

MICHIGAN STATE UNIVERSITY, East Lansing; Richard Schlegel; *Completeness in Physical Science*; 1 year; \$3,000

TEMPLE UNIVERSITY, Philadelphia, Pa.; Jacob W. Gruber; *Richard Owen and Natural Science*; 2 years; \$11,900

TULANE UNIVERSITY OF LOUISIANA, New Orleans; Joseph Ewan; *Studies on American Naturalists*; 1 year; \$7,200

WAYNE STATE UNIVERSITY, Detroit, Mich.; Edward Lurie; *Scientific Organization in Nineteenth Century America*; 2 years; \$12,400

YALE UNIVERSITY, New Haven, Conn.; Leonard G. Wilson; *Lyell and the Development of Geology*; 3 years; \$9,800

Thomas R. Forbes; *William Yarrell, British Naturalist*; 1 year; \$1,500

MATHEMATICAL SCIENCES

ADELPHI COLLEGE, Long Island, N.Y.; Herbert C. Kranzer and James Radlow; *Magnetohydrodynamics*; 2 years; \$17,700

AMERICAN MATHEMATICAL SOCIETY, Providence, R.I.; Gordon L. Walker; *Applications of Functional Analysis*; 1 year; \$74,000

UNIVERSITY OF ARIZONA, Tucson; John B. Butler, Jr.; *Vibration of Beams and Plates*; 2 years; \$6,900

H. Melvin Lieberstein; *Numerical Analysis*; 2 years; \$18,500

Paul Slepian; *Network Theory*; 2 years; \$19,000

BRANDEIS UNIVERSITY, Waltham, Mass.; Maurice Auslander, David A. Buchsbaum, and Dock S. Rim; *Homological Algebra*; 2 years; \$51,700

Max Chretien; *Establishment of Computing Center*; 1 year; \$30,000

Harold I. Levine and Richard S. Palais; *Differential Topology*; 2 years; \$49,400

BROWN UNIVERSITY, Providence, R.I.; Iacopo Barsotti; *Algebraic Geometry*; 2 years; \$37,000

Herbert Federer; *Geometric Measure Theory*; 2 years; \$51,600

Katsumi Nomizu; *Automorphisms of Geometric Structures*; 27 months; \$11,000

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena; R. P. Dilworth; *Group Theory and Matrix Theory*; 1 year; \$22,500

A. Erdelyi; *Functional Analysis*; 1 year; \$28,700

UNIVERSITY OF CALIFORNIA, Berkeley; Chen Chung Chang and Alfred Horn; *Foundations of Mathematics*; 2 years; \$34,600

Jerzy Neyman; *Stochastic Treatment of Natural Phenomena*; 2 years; \$78,000

M. H. Protter; *Partial Differential Equations*; 2 years; \$49,000

- Maxwell A. Rosenlicht; *Algebraic Geometry*; 2 years; \$6,900
 Alfred Tarski; *Metamathematics*; 2 years; \$62,600
 Charles A. Hayes, Jr., Davis; *Establishment of Computing Center*; 3 years; \$40,000
 Richard C. Gilbert and Vernon A. Kramer, Riverside; *Perturbation of Operators*; 2 years; \$13,300
 CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh, Pa.; Walter Noll; *Mechanics and Thermodynamics*; 2 years; \$18,700
 Malempati M. Rao; *Inference in Stochastic Processes*; 2 years; \$5,400
 UNIVERSITY OF CHICAGO, Chicago, Ill.; A. A. Albert; *Algebra, Analysis, and Topology*; 2 years; \$57,300
 Walter L. Bailey; *Algebraic Function Theory*; 2 years; \$16,600
 Paul R. Halmos; *Entropy and Ergodic Theory*; 2 years; \$46,300
 Elias M. Stein; *Harmonic Functions and Fourier Analysis*; 2 years; \$16,600
 CLARK UNIVERSITY, Worcester, Mass.; Daniel Gorenstein; *Finite Groups*; 1 year; \$9,300
 COLUMBIA UNIVERSITY, New York, N.Y.; S. Eilenberg; *Algebra*; 2 years; \$93,500
 Edgar R. Lorch; *Abstract Integration Theory*; 1 year; \$8,000
 Herbert E. Robbins; *Probability Theory and Mathematical Statistics*; 2 years; \$81,400
 UNIVERSITY OF CONNECTICUT, Storrs; Geraldine A. Coon; *Boundary Value Problems*; 15 months; \$5,600
 Harold Torgersen; *Establishment of Computing Center*; 1 year; \$30,000
 E. S. Wolk; *Transitivity in Graphs*; 15 months; \$5,600
 CORNELL UNIVERSITY, Ithaca, N.Y.; Paul Olum; *Algebraic Topology*; 2 years; \$136,000
 DARTMOUTH COLLEGE, Hanover, N.H.; John G. Kemeny; *Potential Theory for Stochastic Processes*; 2 years; \$54,700
 Hazleton Mirkl; *Second Order Operators*; 2 years; \$47,500
 UNIVERSITY OF DETROIT, Michigan; Lyle E. Mehlenbacher; *Establishment of Computing Center (IBM 1620)*; 3 years; \$25,000
 DUKE UNIVERSITY, Durham, N.C.; Leonard Carlitz; *Algebra and Number Theory*; 2 years; \$37,000
 John J. Gergen, Thomas M. Gallie, and Thomas D. Reynolds; *Establishment of Computing Center*; 3 years; \$75,000
 John H. Roberts; *Topology*; 2 years; \$33,700
 FLORIDA STATE UNIVERSITY, Tallahassee; Morton L. Curtis; *Generalized Manifolds*; 2 years; \$59,000
 GEORGETOWN UNIVERSITY, Washington, D.C.; Albert K. Aziz; *Partial Differential Equations*; 2 years; \$13,000
 UNIVERSITY OF GEORGIA, Athens; Lee W. Anderson; *Order and Topology*; 2 years; \$15,400
 J. G. Horne, Jr.; *Topological Semigroups on Euclidean Spaces*; 2 years; \$14,500
 HARVARD UNIVERSITY, Cambridge, Mass.; Garrett Birkhoff; *Lattice Theory and Its Applications*; 1 year; \$12,866
 R. Brauer, J. T. Tate, and O. Zariski; *Algebra, Number Theory, and Algebraic Geometry*; 2 years; \$75,000
 UNIVERSITY OF ILLINOIS, Urbana; S. S. Cairns; *Polyhedral and Differentiable Manifolds*; 2 years; \$15,600
 A. H. Taub; *Numerical Analysis and Applied Mathematics*; 2 years; \$154,000
 INDIANA UNIVERSITY FOUNDATION, Bloomington; T. Y. Thomas; *Mechanics of Continuous Media*; 1 year; \$13,400
 George W. Whaples; *Class Field Theory*; 2 years; \$21,200
 INSTITUTE FOR ADVANCED STUDY, Princeton, N.J.; Deane Montgomery; *Algebra and Topology*; 2 years; \$93,600
 Hassler Whitney; *Mathematics—Analysis*; 2 years; \$93,600
 IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY, Ames; Robert J. Buehler; *The Foundations of Statistical Inference*; 2 years; \$7,600
 H. O. Hartley; *Statistical Estimation and Mathematical Programming*; 2 years; \$34,000
 Oscar Kempthorne; *Residuals in Randomized Experiments*; 2 years; \$17,600
 George Seifert; *Systems of Ordinary Differential Equations*; 2 years; \$20,500
 UNIVERSITY OF KANSAS, Lawrence; Nachman Aronszajn; *Differential Problems*; 17 months; \$37,000
 LEHIGH UNIVERSITY, Bethlehem, Pa.; Samir Khabbaz; *Abelian Groups*; 2 years; \$4,200
 LOUISIANA STATE UNIVERSITY, Baton Rouge; R. D. Anderson; *Generalizations of the Cantor Set*; 2 years; \$28,800
 H. S. Collins; *Measure and Semigroups*; 2 years; \$9,000
 R. J. Koch; *Topological Semigroups*; 2 years; \$21,400
 UNIVERSITY OF MARYLAND, College Park; Avron Douglis; *Partial Differential Equations*; 2½ years; \$41,000
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge; Kenkichi Iwasawa; *Galois Extensions of Algebraic Number Fields*; 2 years; \$29,600
 UNIVERSITY OF MASSACHUSETTS, Amherst; Alfonso G. Azpeltia; *Entire Functions Defined by Dirichlet Series*; 1 year; \$3,200
 MICHIGAN STATE UNIVERSITY, East Lansing; J. E. Adney and Wilbur E. Deskins; *Finite Groups*; 2 years; \$29,000
 UNIVERSITY OF MICHIGAN, Ann Arbor; Nicholas D. Kazarinoff; *Scalar Scattering by Convex Bodies*; 1 year; \$3,500
 UNIVERSITY OF MINNESOTA, Minneapolis; Erwin Engeler; *Theory of Models*; 1 year; \$3,700
 Marguerite J. Frank; *Lie Algebras*; 1 year; \$8,000
 Bjarni Jonsson; *Foundations of Algebra*; \$1,050
 Bjarni Jonsson and Peter Crawley; *Lattice Theory*; 2 years; \$30,000
 G. K. Kalish and B. R. Gelbaum; *Functional Analysis*; 2 years; \$46,500
 Hugh L. Turrittin; *Ordinary Differential Equations*; 1 year; \$7,600
 MISSISSIPPI SOUTHERN COLLEGE, Hattiesburg; Jack D. Munn; *Establishment of Computing Center*; 1 year; \$10,000

- NEW MEXICO STATE UNIVERSITY, University Park; Seymour Goldberg; *Unbounded Linear Operators*; 15 months; \$8,400
 Elbert A. Walker; *Infinite Abelian Groups*; 15 months; \$31,800
- NEW YORK UNIVERSITY, New York City; Sidney Borowitz; *Electromagnetic Theory*; 2 years; \$77,900
 Lipman Bers; *Summability*; 3 months; \$5,700
 Chia-Kun Chu; *Magneto-Hydrodynamic Nozzle Flows*; 1 year; \$5,600
 Richard Courant; *Methods of Mathematical Physics*; 2 years; \$75,000
 James J. Stoker; *Topics in Applied Mathematics*; 2 years; \$200,000
- UNIVERSITY OF NORTH CAROLINA, Chapel Hill; John W. Carr, III; *Computer-Oriented Linguistics Studies*; 2 years; \$40,000
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; R. P. Boas; *Trigonometric Series*; 1 year; \$6,000
 R. P. Boas; *Fourier Series*; 1 year; \$4,500
 R. P. Boas; *Extremal Problems*; 2 years; \$54,000
 Ivar Stakgold; *Boundary Value Problems*; 2 years; \$40,200
 Teruhisa Matsusaka, Alex Rosenberg, and Daniel Zelinsky; *Problems in Algebra and Algebraic Geometry*; 2 years; \$125,000
 H. C. Wang; *Minimal Immersion of Manifolds*; 1 year; \$3,400
- UNIVERSITY OF NOTRE DAME, Notre Dame, Ind.; Hans J. Zassenhaus; *Geometry of Numbers*; 2 years; \$31,400
- OREGON STATE COLLEGE, Corvallis; Helmut Groemer; *General Packings and Coverings of Sets*; 2 years; \$12,600
- UNIVERSITY OF OREGON, Eugene; Fred C. Andrews; *Establishment of Computing Center (IBM 1620)*; 1 year; \$30,000
 Paul Clvin and Bertram Yood; *Extensions of Banach Algebras*; 2 years; \$39,000
- PENNSYLVANIA STATE UNIVERSITY, University Park; Haskell B. Curry; *Combinatory Logic*; 2 years; \$20,400
- UNIVERSITY OF PENNSYLVANIA, Philadelphia; Saul Gorn; *Mechanical Languages*; 2 years; \$27,000
 Walter Koppelman; *The Hilbert and Riemann-Hilbert Problems*; 1 year; \$3,900
 Hans Rademacher; *Analytic Additive Number Theory*; 1 year \$10,400
 Smbat Abian; *Brouwer's Fixed Point Theorem*; 3 months; \$3,700
- PRINCETON UNIVERSITY, Princeton, N.J.; J. C. Elgin and A. W. Tucker; *Operation of Computing Center (IBM 650)*; 1 year; \$15,000
- PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; Gregers L. Krabbe; *Generalized Spectral Decompositions*; 2 years; \$9,800
 Imanuel Marx; *Approximation Theory*; 2 years; \$7,200
 Georg J. Rieger; *Algebraic Numbers*; 2 years; \$24,700
 Henry Telcher; *Stochastic Processes*; 2 years; \$14,000
- RENSSELAER POLYTECHNIC INSTITUTE, Troy, N.Y.; Kurt Bing; *The Axiom of Choice*; 1 year; \$4,200
- UNIVERSITY OF ROCHESTER, N.Y.; William F. Eberlein; *Generalized Harmonic Analysis*; 2 years; \$19,300
- Leonard Gillman; *Semigroups and Rings*; 2 years; \$48,200
 Richard P. Goblirsch; *Topology of Euclidean Spaces*; 2 years; \$12,900
 Richard E. Johnson; *Atomic Modular Lattices*; 2 years; \$31,000
 Ralph A. Raimi; *Stone-Osch Compactifications*; 2 years; \$19,600
 Louis Sucheston; *Mixing and Entropy*; 2 years; \$5,000
- ROOSEVELT UNIVERSITY, Chicago, Ill.; Ruth B. Marcus; *Modal Logic*; 2 years; \$9,400
- UNIVERSITY OF SOUTHERN CALIFORNIA; Los Angeles; Herbert Busemann; *Non-Reimannian Spaces*; 2 years; \$48,000
- UNIVERSITY OF SOUTHWESTERN LOUISIANA, Lafayette; James R. Oliver; *Establishment of Computing Center*; 1 year; \$15,000
- STANFORD UNIVERSITY, Stanford, Calif.; Samuel Karlin; *Probability Theory and Functional Analysis*; 2 years; \$80,000
 Charles Loewner; *Continuous Semigroups*; 3 years; \$50,000
 Emanuel Parzen; *Time Series Analysis*; 2 years; \$73,000
 Ralph S. Phillips; *Functional Analysis*; 2 years; \$90,000
 Hans Samelson; *Topology and Lie Group Theory*; 1 year; \$16,000
- STATE UNIVERSITY OF IOWA, Iowa City; Harry T. Muhly; *Complete Ideals*; 14 months; \$11,000
- STEVENS INSTITUTE OF TECHNOLOGY, Hoboken, N.J.; Lawrence Goldman; *Homogeneous Linear Differential Equations*; 1 year; \$3,100
- SYRACUSE UNIVERSITY RESEARCH INSTITUTE, N.Y.; G. T. Cargo; *Holomorphic Functions*; 2 years; \$8,800
 Shu-Teh Chen Moy; *Markov-Chain and Information Theory*; 1 year; \$8,500
 P. T. Church; *Topology and Analysis*; 2 years; \$13,700
 Werner C. Rheinboldt; *Computing Research*; 2 years; \$30,000
- TEXAS CHRISTIAN UNIVERSITY, Fort Worth; M. E. Sadler; *Establishment of Computing Center*; 3 years; \$15,000
- TULANE UNIVERSITY, New Orleans, La.; A. D. Wallace; *Semigroups*; 2 years; \$40,000
 Gail S. Young; *Topological Methods in Analysis*; 2 years; \$58,600
- UTAH STATE UNIVERSITY; Logan; Wynne Thorne; *Establishment of Computing Center*; 3 years; \$30,000
- UNIVERSITY OF UTAH, Salt Lake City; S. S. Kistler; *Expansion of Computing Center*; 1 year; \$30,000
- UNIVERSITY OF VIRGINIA, Charlottesville; Alan P. Batson; *Establishment of Computing Center (Burroughs 205)*; 1 year; \$60,000
- UNIVERSITY OF WASHINGTON, Seattle; J. M. G. Fell and H. S. Bear; *Functional and Group Algebras*; 2 years; \$24,600
 Edwin Hewitt; *Harmonic Analysis*; 1 year; \$11,500
 Robert F. Tate; *Estimation and Rank-Order Methods in Statistics*; 2 years; \$13,600
- WASHINGTON STATE UNIVERSITY, Pullman; T. G. Ostrom; *Finite Projective Planes*; 2 years; \$15,800

WASHINGTON UNIVERSITY, St. Louis, Mo.; Franklin T. Haimo; *Univalent Functions, Functional and Harmonic Analysis, and Contact Transformations*; 2 years; \$15,800

A. E. Nussbaum; *Laplace-Stieltjes Transforms in Groups*; 2 years; \$8,800

WAYNE STATE UNIVERSITY, Detroit, Mich.; Seymour Sherman; *The Ising Model*; 2 years; \$30,700

WEST VIRGINIA UNIVERSITY, Morgantown; Henry W. Gould; *Binomial Coefficient Summations*; 2 years; \$9,700

WESTERN RESERVE UNIVERSITY, Cleveland, Ohio; George Leger; *Lie Algebras*; 2 years; \$9,315

WILLIAM MARSH RICE UNIVERSITY, Houston, Tex.; John K. Hiffe; *Compiler Routines*; 2 years; \$30,000

UNIVERSITY OF WISCONSIN, Madison; Morris Marden, Milwaukee; *Zeros of Polynomials*; 2 years; \$37,700

Walter Rudin; *Studies in Analysis*; 2 years; \$71,400

YALE UNIVERSITY, New Haven, Conn.; Oystein Ore; *Theory of Graphs and Networks*; 2 years; \$13,700

METABOLIC BIOLOGY

ADELPHI COLLEGE, Garden City, N.Y.; Carl S. Hammer; *Carbon Dioxide Fixation in Invertebrates*; 2 years; \$15,000

ALBERT EINSTEIN MEDICAL CENTER, Philadelphia, Pa.; David H. Ezekiel; *Structure and Function of the Bacterial Nuclear Apparatus*; 1 year; \$36,400

BOYCE THOMPSON INSTITUTE FOR PLANT RESEARCH, Inc., Yonkers, N.Y.; Karl Maramorosch; *Beneficial Effect of Aster Yellow Virus on Non-Vector Insects*; 2 years; \$31,100

BRANDEIS UNIVERSITY, Waltham, Mass.; Nathan O. Kaplan; *Cellular Activity*; 3 years; \$86,100

John M. Lowenstein; *Hydrogen in Biosynthesis*; 3 years; \$50,000

UNIVERSITY OF CALIFORNIA, Los Angeles; David Appleman; *Function of Catalase*; 2 years; \$15,000

Daniel I. Arnon; *Nitrogen Assimilation and Photosynthesis*; 3 years; \$90,500

Michael Doudoroff; *Metabolism of Organic Substrates in Bacteria*; 3 years; \$58,900

Samuel Lepkovsky; *Tryptophane Metabolism to Carbohydrate Metabolism*; 3 months; \$3,000

P. K. Stumpf, Davis; *Enzymatic Mechanisms Participating in Fat Metabolism of Higher Plants*; 4 years; \$61,100

John A. DeMoss, La Jolla; *Studies on the Genetic and Physiological Control of Cellular Structures*; 18 months; \$19,800

Otto H. Scherbaum, Los Angeles; *Metabolic Studies Concerning the Mechanism of Synchronized Cell Division*; 2 years; \$37,800

Victor W. Rodwell, San Francisco; *Bacterial Metabolism of Pterocolic Acid*; 2 years; \$25,200

UNIVERSITY OF CHICAGO, Ill.; Warren A. Furumoto; *Infection by Tobacco Mosaic Virus*; 2 years; \$20,000

COLORADO STATE UNIVERSITY RESEARCH FOUNDATION, Fort Collins; E. Merle Harrison and Merle G. Payne; *Chemical Identification and Mechanism of Action of a Phenolic*

Compound Responsible for Resistance to Cercospora Leaf-Spot; 2 years; \$9,000

UNIVERSITY OF CONNECTICUT, Storrs; Emil O. Bernstein; *Factors Responsible For and Associated With Obligatory Photoautotrophy*; 2 years; \$25,000

CORNELL UNIVERSITY, Ithaca, N.Y.; Martin Alexander and J. E. Dawson; *Metabolism of Chemoautotrophic and Heterotrophic Nitrifying Microorganisms*; 3 years; \$28,800

UNIVERSITY OF DELAWARE, Newark; John H. McClelland; *Respiratory Mechanisms in Cultivated Mushroom*; 2 years; \$8,000

John C. Wriston, Jr.; *Fractionation of Guinea Pig Serum, and Mechanism of its Action on a Mouse Tumor*; 2 years; \$23,000

DUKE UNIVERSITY, Durham, N.C.; Aubrey W. Naylor; *Protein Formation and Amino Acid Metabolism in Plants*; 2 years; \$20,000

UNIVERSITY OF FLORIDA, Gainesville; James A. Olson; *Intestinal Absorption and Blood Transport of Sterols and Fat-Soluble Vitamins*; 2 years; \$39,500

GEORGE WASHINGTON UNIVERSITY, Washington, D.C.; Robert C. Wood; *Synthesis of Tetrahydropteroylpolyglutamic Acid from P-Aminobenzoic Acid and Pteridines by Bacteria*; 2 years; \$29,400

UNIVERSITY OF GEORGIA, Athens; Robert A. McRorie and William J. Payne; *Enzymology of Bacterial Utilization of Uronic Acids*; 2 years; \$17,900

William J. Payne; *Metabolism of Marine Bacteria*; 2 years; \$19,500

GOUCHER COLLEGE, Baltimore, Md.; Helen M. Habermann; *Physiology of Pigment-deficient Mutants of *Helianthus Annuus L.**; 2 years; \$37,000

Clifford R. Noll, Jr.; *Diphosphopyridine Nucleotide-Linked Dehydrogenases*; 6 months; \$2,200

HAHNEMANN MEDICAL COLLEGE and HOSPITAL, Philadelphia, Pa.; Herbert J. Eichel; *Studies on Respiratory Enzymes in Protozoa*; 2 years; \$24,400

John J. Spitzer; *Metabolic Studies of Low Density Lipoproteins*; 2 years; \$18,200

Morris A. Spirtes; *Tissue Slice Metabolism and Cell Membrane Permeability*; 2 years; \$11,400

HARVARD UNIVERSITY, Cambridge, Mass.; Herbert L. Ennis and Martin Lubin; *Bio-synthetic Control Mechanisms in Mammalian Cells*; 2 years; \$29,100

R. P. Geyer; *Factors Affecting Lipide Metabolism*; 1 year; \$11,800

Edmund C. C. Linn; *Control of Polyhyaric Alcohol Metabolism in Bacterial Cells*; 2 years; \$26,600

HARVARD UNIVERSITY, Cambridge, Mass.; A. M. Pappenheimer; *Biology of *Diphtheria* and of *Diphtheria Bacillus**; 3 years; \$56,800

William H. Pearلمان; *Metabolism and Localization of High Radioactive Steroid Sex Hormones in Target Sexual Tissues*; 3 years; \$33,000

William R. Siström; *Bacterial Chromatophores*; 3 years; \$32,800

UNIVERSITY OF HAWAII, Honolulu; Robert W. Hiatt; *Equipment for Biochemical Research*; 1 year; \$38,500

HENRY FORD HOSPITAL, Detroit, Mich.; O. H. Gaebler; *Metabolism of Nitrogen-15 From Individual Sources*; 3 years; \$34,500

- UNIVERSITY OF ILLINOIS, Urbana; I. C. Gunsalus; *Comparative Aspects of Metabolic Activity*; 1 year; \$98,100
- John B. Hanson; *Effect of Plant Growth Regulators on the Metabolic Activities of Subcellular Particles from Plant Tissue*; 3 years; \$43,500
- Lawrence I. Hochstein; *Bacterial Oxidation of N-acetylglucosamine*; 2 years; \$18,000
- B. Connor Johnson; *Vitamin A in Adrenocorticosteroid Biosynthesis*; 3 years; \$17,600
- INDIANA UNIVERSITY FOUNDATION, Bloomington; Felix Haudrowitz; *Biosynthesis, Structure and Specificity of Proteins*; 3 years; \$30,000
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Howard J. Saz; *Intermediary Metabolism of Ascaris Lumbricoides Adults and Larvae*; 2 years; \$36,000
- KAISER FOUNDATION RESEARCH INSTITUTE, Richmond, Calif.; Alex Shrift; *The Uncoupling of Cell Division From Growth*; 1 year; \$2,000
- UNIVERSITY OF KANSAS MEDICAL CENTER, Kansas City; Paul R. Schloerb; *Liquid Scintillation Counter*; 1 year; \$12,500
- LOS ANGELES STATE COLLEGE FOUNDATION, Calif.; Anthony J. Andreoli; *Metabolism of Glutaric and Higher Dicarboxylic Acids in Bacteria and Animal Tissues*; 2 years; \$18,800
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge; Gene M. Brown; *Metabolism and Function of B Vitamins*; 3 years; \$68,900
- John M. Buchanan; *Biosynthesis of the Methyl Group of Methionine, Coenzymatic Role of Vitamin B₁₂*; 3 years; \$77,400
- UNIVERSITY OF MASSACHUSETTS, Amherst; Trevor Robinson; *Enzymatic Pathways of Alkaloid Biosynthesis*; 1 year; \$3,000
- MIAMI UNIVERSITY, Oxford, Ohio; David W. Newman; *Physiology and Biochemistry of Lipids of Higher-Plant Chromoplasts*; 2 years; \$15,000
- UNIVERSITY OF MIAMI, Coral Gables, Fla.; W. J. van Wagtenonk; *Nucleic Acid Turnover in Paramecium Aurelia*; 2 years; \$21,400
- MICHAEL REESE HOSPITAL, Chicago, Ill.; Sidney Cohen and Felix Leitner; *Nature of Repressor of Penicillinase Synthesis in Staphylococcus Aureus*; 2 years; \$22,000
- MICHIGAN STATE UNIVERSITY, East Lansing; Harold M. Sell; *Biochemistry of Natural and Synthetic Growth Substances*; 2 years; \$16,100
- UNIVERSITY OF MICHIGAN, Ann Arbor; Harold J. Blumenthal; *Metabolism of Hexeric Acids*; 3 years; \$32,900
- Rowland H. Davis; *Biochemical Relationships Among Pyrimidine and Arginine Mutants of Neurospora*; 3 years; \$37,300
- OKLAHOMA STATE UNIVERSITY, Stillwater; L. M. Henderson; *Metabolism of 3-Hydroxyanthrenilate*; 2 years; \$18,000
- Roger K. Koeppe; *Metabolism of Glutaric Acid*; 2 years; \$19,200
- ORANGE COUNTY STATE COLLEGE FOUNDATION, Fullerton, Calif.; Donald D. Sutton; *Spore Formation in Fungi*; 3 years; \$22,800
- OREGON STATE COLLEGE, Corvallis; Te May Ching; *Fat Metabolism of Germinating Seed*
- of Douglas Fir and Role of Plastid in Fat Metabolism*; 2 years; \$16,800
- Tsao E. King; *Reconstitution of the Mitochondrial Respiratory Chain*; 3 years; \$53,500
- Leo W. Parks; *Ergosterol Metabolism in Saccharomyces Cerevisiae*; 2 years; \$13,000
- PENNSYLVANIA STATE UNIVERSITY, University Park; Carl O. Clagett; *Peptides in Plant Metabolism*; 3 years; \$11,900
- E. S. Lindstrom; *Chromatophoral Sulfate Metabolism*; 3 years; \$12,000
- PHILADELPHIA GENERAL HOSPITAL RESEARCH FUND, Pa.; Gerald Litwack; *Action and Fractionation of Lysozyme Resistance Transferring DNA*; 3 years; \$21,000
- PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; Harry Beevers; *Biochemical Aspects of Germination*; 3 years; \$67,300
- Henry Koffler; *Biosynthesis of Carbohydrates*; 3 years; \$50,000
- F. C. Nieldhardt; *Regulation of Ribonucleic Acid Synthesis in Bacteria*; 3 years; \$60,000
- William J. Ray, Jr.; *Group Transfer Process*; 3 years; \$50,000
- REED COLLEGE, Portland, Oreg.; Helen A. Stafford; *Physiology of Lignin Formation*; 3 years; \$18,800
- RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK, Albany; Arthur M. Zimmerman, Brooklyn; *ATP on Living Cells*; 2 years; \$15,000
- ROCKEFELLER INSTITUTE, New York, N.Y.; Gertrude Gottschall; *White Cell Proteases in Hemostasis*; 2 years; \$25,000
- RUTGERS, THE STATE UNIVERSITY, New Brunswick, N.J.; Bernard W. Koff; *Biosynthesis of Pteridines by Bacteria*; 2 years; \$15,000
- Robert L. Starkey; *The Fate of Sulfur of Organic Compounds Decomposed by Microorganisms*; 2 years; \$14,100
- Henry J. Vogel; *Comparative Microbial Biosynthesis*; 3 years; \$50,500
- Selman A. Waksman; *Biosynthesis of Streptomycin Group of Antibiotics*; 3 years; \$50,200
- UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles; Carmel M. Roberts; *Metabolism of Differentiating Cardiac Cells*; 2 years; \$22,000
- Eilon G. Scott; *Metabolic Role of Boron*; 2 years; \$18,200
- STATE UNIVERSITY OF SOUTH DAKOTA, Vermillion; A. D. Larson; *Bacterial Metabolism*; 2 years; \$14,000
- SYRACUSE UNIVERSITY RESEARCH INSTITUTE, Syracuse, N.Y.; Donald G. Lundgren; *Biosynthesis in Obligate Chemosynthetic Autotroph*; 2 years; \$6,400
- UNIVERSITY OF TENNESSEE, Knoxville; Joseph A. Ontko; *Liquid Scintillation Counter for Research in Biochemistry*; 1 year; \$12,500
- UNIVERSITY OF TEXAS, Austin; David H. Ezekiel; *Structure and Function of Bacterial Nuclear Apparatus*; 3 years; \$44,200
- Jackson W. Foster; *Hydrocarbon Metabolism in Microorganisms*; 4 years; \$132,600
- Don W. Micks, Galveston; *Effects of Insecticides on Protein Synthesis*; 2 years; \$16,000

Jack Myers; *Physiology and Biochemistry of Algae*; 3 years; \$48,400

TUFTS UNIVERSITY, Medford, Mass.; Roy L. Kisliuk; *Role of Vitamin B₁₂ in Methyl Group Synthesis*; 3 years; \$56,400

UTAH STATE UNIVERSITY, Logan; Gene W. Miller; *Respiratory Chain Involved in Oxidative Phosphorylation in Relation to Carbon Dioxide-Bicarbonate Inhibition*; 2 years; \$19,500

VANDERBILT UNIVERSITY, Nashville, Tenn.; C. R. Park; *Membrane Transport of Glucose*; 3 years; \$39,000

J. van Eys; *New Sites of Action of Thiamine*; 3 years; \$21,800

UNIVERSITY OF VERMONT, Burlington; Donald B. Melville; *A Study of Ergothioneine in Animals*; 1 year; \$8,300

Donald B. Melville; *Biochemistry of Ergothioneine*; 2 years; \$35,500

David Racusen; *Synthesis and Fate of Leaf Protein*; 2 years; \$14,400

VIRGINIA POLYTECHNIC INSTITUTE, Blacksburg; Kendall W. King; *Metabolic Transitions During Cellular Development in Algae*; 2 years; \$25,600

M. Daniel Lane; *Alternate Pathways of Butyrate Metabolism*; 2 years; \$24,600

WAKE FOREST COLLEGE, Winston-Salem, N.C.; Walter J. Bo; *Synthesis of Glycogen from Uridinediphosphoglucose in Uterus*; 1 year; \$14,200

WASHINGTON STATE UNIVERSITY, Pullman; H. M. Nakata; *Physiology of Sporulation in Aerobic Bacilli*; 2 years; \$13,000

WEST VIRGINIA UNIVERSITY, Morgantown; Wayne W. Luchsinger; *Studies on Mechanism of Action of Beta-Glucanases*; 2 years; \$29,500

WESTERN RESERVE UNIVERSITY, Cleveland, Ohio; Henry Z. Sable; *Carbohydrate Metabolism*; 3 years; \$44,800

UNIVERSITY OF WISCONSIN, Madison; W. H. McShan and Roland K. Meyer; *Purification and Characterization of Particulates from the Anterior Pituitary Gland*; 1 year; \$16,700

WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY, Shrewsbury, Mass.; Erwin Schwenk; *Biosynthesis of Cholesterol*; 2 years; \$10,000

YESHIVA UNIVERSITY, New York, N.Y.; Theodore Winnick; *Mechanisms of Biosynthesis of Polypeptides*; 1 year; \$20,900

MOLECULAR BIOLOGY

ALBERT EINSTEIN MEDICAL CENTER, Philadelphia, Pa.; Daniel A. Boroff; *Chemistry and Biological Activity of Botulinum Toxin*; 2 years; \$60,000

AUBURN UNIVERSITY, Auburn, Ala.; Anton N. J. Heyn; *Fiber and Ultra Structure Research*; 2 years; \$50,000

BOSTON UNIVERSITY, Mass.; William C. Boyd; *Antibody-Antigen Complex; Reactions and Chemistry*; 3 years; \$60,000

BRANDEIS UNIVERSITY, Waltham, Mass.; Herman T. Epstein; *Properties of a New Megaterium Phage*; 2 years; \$35,000

Lawrence Grossman; *Nucleic Acids*; 3 years; \$58,900

William P. Jencks; *Energy Transferring in Biological Systems*; 3 years; \$48,400

Mary Ellen Jones; *Biosynthetic and Transfer Reactions*; 3 years; \$42,900

Julius Marmor; *The Biological Polymers*; 2 years; \$71,800

BROWN UNIVERSITY, Providence, R.I.; Seymour Lederberg; *Origin and Function of Subcellular Particles of Microorganisms*; 2 years; \$19,000

UNIVERSITY OF BRUSSELS, Belgium; P. R. Srinivasan; *The Mechanism of Transfer of Genetic Information Between Nucleus and Cytoplasm*; 2 years; \$15,000

UNIVERSITY OF CALIFORNIA, Berkeley; Melvin Calvin; *Mass Spectrometer for Primitive Earth Gas Mixtures*; 1 year; \$33,000

William A. Jensen; *Uptake of Macromolecules by Living Plant Cells*; 2 years; \$20,000

Stanley L. Miller; *Mechanisms for the Synthesis of Organic Compounds on the Primitive Earth*; 18 months; \$15,100

Manuel F. Morales; *Configuration of Dissolved Proteins and Protein Models*; 5 years; \$31,000

Nello Pace; *Cation Exchange Binding Properties of Cellular Membrane Materials*; 2 years; \$30,000

Benjamin E. Volcani; *Biochemical Studies on Siliceous Skeletal Formation in Marine Microorganisms*; 2 years; \$70,000

Donald M. Reynolds, Davis; *Development of an Enzymatic Assay for Chitin*; 2 years; \$30,000

Claude E. ZoBell, La Jolla; *Effects of Increased Hydrostatic Pressure on Bacterial Reaction Rates*; 2 years; \$25,000

William J. Hartman and William G. Clark, Los Angeles; *Biosynthesis of Pharmacologically Active Amines in Cephalopods*; 2 years; \$28,000

Fritiof S. Sjostrand, Los Angeles; *Analysis of Enzymatic Activities Connected with Certain Cytoplasmic Systems*; 2 years; \$90,000

Joel W. Goodman, San Francisco; *Immunochemical Studies of the Glutamyl Polypeptide-Antipolypeptide System*; 2 years; \$23,000

UNIVERSITY OF CHICAGO, Ill.; Irving H. Goldberg; *Enzymatic Synthesis of Ribonucleic Acid*; 3 years; \$75,000

Kenneth D. Kopple; *Peptide Models of Enzymes*; 3 years; \$52,400

John Westley; *Mechanism of Action of the Enzyme Rhodanese*; 2 years; \$25,000

UNIVERSITY OF CINCINNATI, Ohio; Richard A. Day; *Determination of Secondary and Tertiary Structure of Proteins*; 5 years; \$30,000

Robert C. Krueger; *Nature and the Mechanism of Tyrosinase Action*; 3 years; \$12,900

CITY OF HOPE MEDICAL CENTER, Duarte, Calif.; Alois H. Nowotny and Janos Wein; *Bacterial O-antigens*; 2 years; \$30,000

COLUMBIA UNIVERSITY, New York, N.Y.; David Shemin; *Biosynthesis and Function of Porphyrins*; 1 year; \$5,000

Stuart W. Tanenbaum and Sam M. Belser; *Biosynthesis of Antibody and Molecular Conformation of Combining Sites*; 3 years; \$38,700

Stephen Zamenhof; *Studies on the Biochemistry of Polysugarphosphates*; 2 years; \$20,000

- CORNELL UNIVERSITY, Ithaca, N.Y.; Thomas C. Bruce; *Synthesis of a Series of Gem Mercaptoethylamines*; 4 years; \$86,500
George P. Hess; *Structural and Functional Interrelationships in Enzymes*; 2 years; \$42,000
Harold A. Scheraga; *Thermodynamic Properties of Proteins*; 3 years; \$72,000
- DARTMOUTH COLLEGE, Hanover, N.H.; R. Clinton Fuller; *Intracellular Structure and Function in Microbial Cells*; 2 years; \$200,000
Joseph D. Harris; *Kinetics of Ionic Movement Across Membranes*; 3 years; \$31,600
Arnold Wishnia; *Hydrophobic Interactions*; 3 years; \$22,300
- DUKE UNIVERSITY, Durham, N.C.; Paul Horowitz; *Ion Transport Across Membranes in Muscle*; 2 years; \$28,000
Charles Tanford; *The Configuration of Proteins in Solution*; 1 year; \$9,900
Charles Tanford; *Conformation of Proteins in Organic Aqueous Solvent Mixtures*; 3 years; \$54,000
- DUQUESNE UNIVERSITY, Pittsburgh, Pa.; Oscar Gawron; *Reaction of Cyanide with Cystine*; 2 years; \$13,200
- EDSEL B. FORD INSTITUTE FOR MEDICAL RESEARCH, Detroit, Mich.; Harvey F. Fisher; *Mechanisms of Reactions Catalyzed by Pyridine Nucleotide Dehydrogenases*; 2 years; \$25,000
- FLORIDA STATE UNIVERSITY, Tallahassee; Earl Frieden; *Copper Enzymes, Proteins, and Copper Ion Catalyses*; 3 years; \$58,800
- GEORGE WASHINGTON UNIVERSITY, Washington, D.C.; Stephen Yeandle; *Limulus Photoreceptor*; 3 years; \$41,100
- HARVARD UNIVERSITY, Cambridge, Mass.; Paul Doty; *Research on Polypeptides and Proteins*; 3 years; \$225,000
John H. Law; *Bacterial Lipids*; 2 years; \$22,000
Matthew S. Meselson; *Replication of DNA*; 3 years; \$130,000
- HEALTH RESEARCH INC., Buffalo, N.Y.; David Harker; *Crystal Structure of Ribonuclease*; 2 years; \$70,000
- HOWARD UNIVERSITY, Washington, D.C.; Felix Friedberg; *Estimation of Peptides*; 2 years; \$14,500
- UNIVERSITY OF ILLINOIS, Urbana; L. P. Hager; *Biological Halogenation Mechanisms*; 1 year; \$13,500
A. C. Ivy; *Determination of Histamine*; 1 year; \$10,800
Eugene Rabinowitch; *Photochemical and Photogalvanic Storage of Light*; 3 years; \$43,000
N. Sueoka; *DNA Base Composition and Structure of Enzymes*; 2 years; \$50,000
Elizabeth Thorogood; *Legume Nodule Hemoproteins*; 1 year; \$15,800
- INDIANA UNIVERSITY FOUNDATION, Bloomington; Howard V. Rickenberg; *Control Mechanisms of Enzyme Biosynthesis*; 2 years; \$31,000
- JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA, Pa.; Alfred Marshak; *DNA in the Maturation of Echinoderm Eggs*; 2 years; \$16,000
- JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Michael B. Yarmolinsky; *Mechanism of Protein Synthesis*; 3 years; \$50,300
- KANSAS STATE UNIVERSITY, Manhattan; Anthony M. Gawlinowski and Richard N. McDonald; *Synthesis of 14_c Ring Labeled Diethylstilbestrol*; 2 years; \$10,000
- UNIVERSITY OF KANSAS MEDICAL CENTER, Kansas City; Jacob D. Duerksen; *Inducer Metabolism and its Relationship to the Function of Sub-cellular Particles*; 2 years; \$27,000
- KANSAS WESLEYAN UNIVERSITY, Salina; Orville L. Voth; *Interactions of Tocopherol with Proteins and Amino Acids*; 1,000
- LAWRENCE COLLEGE, Appleton, Wis.; Robert M. Rosenberg; *Interaction of Proteins with Ethanol*; 2 years; \$9,000
- UNIVERSITY OF LOUISVILLE, Louisville, Ky.; Bruce M. Anderson; *Mechanism of Enzyme Action*; 3 years; \$40,300
Paul G. LeFevre; *Mechanism of Transport Through Cell Membranes*; 1 year; \$50,000
- MASSACHUSETTS EYE AND EAR INFIRMARY, Boston, Mass.; S. Peter Marfey; *Structural and Synthetic Studies Related to Cytochrome C*; 2 years; \$30,000
- MASSACHUSETTS GENERAL HOSPITAL, Boston; Murray Vernon King; *Crystallography of Proteins and Polypeptides*; 1 year; \$15,000
Karl Schmid; *Chemical Structure of the Low Molecular Weight Human Plasma Glycoproteins*; 2 years; \$27,000
Dorothy F. Travis; *The Molecular Biology of Crustacean Mineralized Tissues*; 2 years; \$28,000
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge; Howard M. Dintzis; *Crystalline Proteins*; 1 year; \$29,000
- MAYO ASSOCIATION, Rochester, Minn.; Eugene Ackerman; *Physical Factors Controlling the Activity of Xanthine Oxidase and Other Enzymes*; 2 years; \$27,000
- MEDICAL COLLEGE OF VIRGINIA, Richmond; Alfred J. Richard; *Isolation of the Smallest Serologically Active Peptide from a Protein Hydrolyzate*; 2 years; \$13,000
- COLLEGE OF MEDICAL EVANGELISTS, Loma Linda, Calif.; Robert L. Nutter; *Relationship of DNA Synthesis to Protein Synthesis in Multiplicity Reactivation in the T. Even Bacteriophages*; 2 years; \$11,000
- MELLON INSTITUTE, Pittsburgh, Pa.; Edward F. Casassa; *Physical Chemistry of Seed Proteins*; 2 years; \$29,000
- UNIVERSITY OF MICHIGAN, Ann Arbor; Arthur Yuwiler; *Studies on 5-Hydroxytryptophan 3,4-Dihydroxyphenylalanine Decarboxylase*; 2 years; \$24,000
- UNIVERSITY OF MINNESOTA, Minneapolis; Allan H. Brown; *Photosynthetic Research*; 3 years; \$36,000
Irvin B. Liener; *Structural Basis of Enzyme Action*; 3 years; \$37,300
- MONTANA STATE COLLEGE, Bozeman; Ralph A. Olsen; *Ion Accumulation by Plant Cells*; 1 year; \$6,500
- MOUNT SINAI HOSPITAL, New York, N.Y.; J. D. Chanley and Harry Sobotka; *Steroid Compounds from Invertebrates*; 3 years; \$34,900
Harry Sobotka; *Factor Converting Mesophilic into Thermophilic Microorganisms*; 2 years; \$28,000

- NEW YORK UNIVERSITY, New York; Milton Levy; *Chemical Structure of Collagen and Other Fibrous Proteins*; 3 years; \$52,000
- OHIO STATE UNIVERSITY RESIDENT FOUNDATION, Columbus; George C. Webster; *Enzymatic Synthesis of Protein*; 3 years; \$31,700
- Melville L. Wolfrom; *Research on Polysaccharides*; 3 years; \$39,000
- UNIVERSITY OF OKLAHOMA, Norman; Everett C. Bracken; *Studies of Virus*; 2 years; \$32,300
- OREGON STATE COLLEGE, Corvallis; Harold J. Evans; *Nodule-nitrate Reductase in the Mechanism of Nitrogen Fixation by Leguminous Plants*; 6 months; \$5,800
- UNIVERSITY OF OREGON, Eugene; John A. Schellman; *The Binding of Nucleotides to Proteins*; 3 years; \$40,000
- PRINCETON UNIVERSITY, Princeton, N.J.; Aurin M. Chase; *Mechanism of Enzyme Action: Luciferase*; 3 years; \$22,400
- Jacques Fresco; *Physical-Chemical Investigations of Polynucleotides and Nucleic Acids*; 2 years; \$30,000
- PURDUE RESIDENT FOUNDATION, Lafayette, Ind.; A. I. Aronson; *Ribosomes: Their Structure, Synthesis, and Role in Intracellular Differentiation*; 3 years; \$52,800
- F. L. Crane; *Function of Quinones in Electron Transport and Phosphorylation Processes*; 2 years; \$33,000
- E. H. Simon; *Consequences of Incorporation of 5-Bromouracil into Deoxyribonucleic Acids of HeLa Cells*; 3 years; \$61,700
- REED COLLEGE, Portland, Ore.; Michael Litt; *A Kinetic Study of Ribonuclease*; 1 year; \$5,000
- UNIVERSITY OF ROCHESTER, N.Y.; T. T. Bannister; *Primary Process in Photosynthesis*; 3 years; \$60,000
- Thomas R. Punnett; *Mechanisms of the Hill Reaction*; 2 years; \$30,000
- ROCKEFELLER INSTITUTE, New York, N.Y.; Daniel E. Koshland, Jr.; *Enzyme Structure and Function*; 1 year; \$12,500
- Beatrice S. Magdoff; *The Determination of the Structure of Southern Bean Mosaic Virus by X-ray Diffraction Technique*; 1 year; \$10,000
- RUTGERS, THE STATE UNIVERSITY, New Brunswick, N.J.; Michael Heidelberger; *Relations Between Chemical Constitution and Immunological Specificity*; 14 months; \$14,600
- SAINT LOUIS UNIVERSITY, Mo.; Audrey Stevens; *Metabolism of Ribonucleic Acid in Bacterial Extracts*; 3 years; \$49,800
- SMITH COLLEGE, Northampton, Mass.; Gladys A. Anslow; *Structure of Small Peptides*; 2 years; \$34,700
- UNIVERSITY OF SOUTH CAROLINA, Columbia; B. Theodore Cole; *A Comparative Study of Lipid Constituents and Changes Therein*; 2 years; \$25,000
- STANFORD UNIVERSITY, Stanford, Calif.; M. S. Blois; *g-Values of Biological Free Radicals*; 2 years; \$45,000
- STATE UNIVERSITY OF IOWA, Iowa City; Henry B. Bull; *Adsorbed Monolayers of Proteins*; 3 years; \$72,000
- TEXAS AGRICULTURAL AND MINING RESEARCH FOUNDATION, College Station; H. K. Zimmerman; *Fundamental Chemistry of Amino-sugars*; 1 year; \$15,000
- UNIVERSITY OF TEXAS, Austin; Lester Packer, Dallas; *Function of Sub-Cellular Membranes*; 3 years; \$65,000
- Austen F. Riggs; *Biochemistry of Hemoglobin and of Nitrogen Fixation*; 2 years; \$53,000
- UNIVERSITY OF VERMONT AND STATE AGRICULTURE COLLEGE, Burlington; Thomas B. Tomasi; *Relation of Rheumatoid Factors to 19S Antibodies*; 1 year; \$30,000
- WASHINGTON UNIVERSITY, St. Louis, Mo.; Robert K. Crane; *Mechanism of Intestinal Absorption*; 3 years; \$105,000
- WEIZMANN INSTITUTE OF SCIENCE, Rehovoth, Israel; David Elson; *Ribonucleoproteins*; 3 years; \$25,200
- WELLS COLLEGE, Aurora, N.Y.; Diether G. Markees; *Synthesis of Substituted 2,6-Diaminopyridines*; 2 years; \$7,100
- UNIVERSITY OF WISCONSIN, Madison; Robert A. Alberty; *Physical Chemical Studies of Enzymes*; 4 years; \$78,700
- William Wallace, Cleveland; *Determination of Enzymic Mechanisms by Kinetic Studies*; 2 years; \$10,000
- H. Gobind Khosra; *Chemical and Enzymic Studies of Polynucleotides*; 3 years; \$86,000
- Oliver Smithies; *Genetic Determination of Protein Structure*; 3 years; \$75,700
- J. W. Williams; *Magnetically Supported Equilibrium Ultracentrifuge*; 2 years; \$21,000
- YALE UNIVERSITY, New Haven, Conn.; David I. Hitchcock; *Colloid Osmotic Pressures of Acid Protein Solutions*; 1 year; \$1,200
- Daniel L. Kline; *Activation and Purification of Fibrinolytic Enzymes*; 2 years; \$22,000
- Frank Ulrich; *Ion Transport by Mitochondria and Permeability of Mitochondrial Membranes*; 3 years; \$26,400
- YESHIVA UNIVERSITY, New York, N.Y.; Harry Eagle; *Studies in Cell Culture*; 1 year; \$100,000
- Sasha England; *Structural Nature of Malic Dehydrogenases*; 3 years; \$35,000
- Paul M. Gallop; *Study of High Weight Polypeptides*; 1 year; \$1,400
- Henry D. Hoberman; *Coupling of Co-enzyme-linked Oxidation-reduction Reactions*; 2 years; \$37,000
- Nathar W. Penn; *RNA Synthesis in Liver Mitochondria*; 1 year; \$10,000
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- AGRICULTURAL AND TECHNICAL COLLEGE OF NORTH CAROLINA, Greensboro; Donald A. Edwards; *Phase Relationships of Cadmium-Magnesium Alloys*; 2 years; \$13,300
- AMHERST COLLEGE, Amherst, Mass.; Colby W. Dempsey, Joel E. Gordon, and Theodore Soller; *Specific Heat of Rare Earth Metals*; 2 years; \$21,500
- UNIVERSITY OF ARIZONA, Tucson; Robert M. Kalbach; *High Energy Elementary Particle Interactions in Nuclear Emulsion*; 1 year; \$13,000
- BRANDEIS UNIVERSITY, Waltham, Mass.; Saul Barshay, Kenneth W. Ford and Silvan S. Schweber; *Theoretical High Energy Physics*; 2 years; \$90,700

- Stanley Deser; *Elementary Particle Physics and General Relativity*; 2 years; \$17,400
- BRIGHAM YOUNG UNIVERSITY, Provo, Utah; Albert D. Swensen and E. John Eastmond; *Purchase of a Nitrogen Liquefier*; 2 years; \$15,100
- BROWN UNIVERSITY, Providence, R.I.; Rohn Truell; *Study of Defects in Solids by Means of Ultrasonic Methods*; 2 years; \$39,000
- BRYN MAWR COLLEGE, Bryn Mawr, Pa.; Walter C. Michels; *Investigations of the Structure of Matter*; 1 year; \$16,700
- BUCKNELL UNIVERSITY, Lewisburg, Pa.; Robert A. Artman; *Ultrasonic Waves in Anisotropic Media*; 14 months; \$10,600
William S. Porter; *Theoretical Analysis of Deuteron Reactions and Scattering*; 15 months; \$7,700
- UNIVERSITY OF BUFFALO, Buffalo, N.Y.; Robert G. Arns; *Energy Levels in Odd Mass Number Nuclei*; 2 years; \$30,800
Henry Goldberg; *Atom-Environment Interactions*; 2 years; \$16,900
S. Mrozowski; *Spectroscopy of Forbidden Lines*; 2 years; \$29,100
Edward H. Kerner; *Ensemble Treatment of Ecological Models*; 1 year; \$4,300
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena; Jesse W. M. DuMont and Harry A. Kirkpatrick; *Precision Comparison of the X-ray Wavelength Scales*; 1 year; \$18,000
- UNIVERSITY OF CALIFORNIA, Berkeley; Sumner P. Davis; *Nuclear Properties and Atomic Spectra*; 2 years; \$30,300
Erwin L. Hahn; *Double Spin Resonance Spectroscopy*; 3 years; \$60,000
Bernd Matthias; *Equipment for Solid State Research*; 2 years; \$48,200
William A. Nierenberg; *Hyperfine Structure Anomaly*; 2 years; \$30,000
George Feher, La Jolla; *Electron Spin Resonance Studies*; 2 years; \$283,800
- CARNEGIE INSTITUTE OF TECHNOLOGY, Pittsburgh, Pa.; George W. Hinman; *Solid State Gamma Ray Angular Correlation Studies*; 1 year; \$17,800
- CASE INSTITUTE OF TECHNOLOGY, Cleveland, Ohio; Thomas G. Eck; *The Fine and Hyperfine Structure of Excited States of Atoms*; 2 years; \$38,400
- CATHOLIC UNIVERSITY OF AMERICA, Washington, D.C.; Theodore A. Litovitz and George E. McDuffie; *Dielectric Relaxation Phenomena in Associated Liquids*; 2 years; \$20,400
- UNIVERSITY OF CHICAGO, Ill.; Masatoshi Koshiba; *Nuclear Interactions at Energies Greater Than 10^{12} Electron Volts*; 8½ months; \$48,000
- CITY COLLEGE OF NEW YORK, New York, N.Y.; Robert M. Lea; *Pion Scattering by Protons from Bubble Chamber Photographs*; 15 months; \$19,800
- COLBY COLLEGE, Waterville, Maine; James W. Beatty, Jr.; *Gaseous Diffusion of Multi-component Systems*; 31 months; \$16,800
- UNIVERSITY OF COLORADO, Boulder; Masataka Mizushima; *Strong Field Stark Effect*; 18 months; \$18,000
Frank Oppenheimer; *Elementary Particle Interactions from Bubble Chamber Photographs*; 2 years; \$116,300
- COLUMBIA UNIVERSITY, New York, N.Y.; Henry A. Boorse; *Superconductivity and Liquid Helium Studies*; 2 years; \$83,600
Charles H. Townes; *Molecular Structure Studies with a Maser Beam Spectrometer*; 2 years; \$49,800
- CORNELL UNIVERSITY, Ithaca, N.Y.; Robert M. Cotts; *Nuclear Spin Resonance*; 3 years; \$90,200
Benjamin M. Siegel; *Defect Structure in Solids*; 3 years; \$42,200
- DARTMOUTH COLLEGE, Hanover, N.H.; Robert W. Christy; *Optical and Electrical Properties of Ionic Crystals*; 2 years; \$24,000
William P. Davis, Jr.; *Oscillations in Direct Current Glow Discharges*; 1 year; \$7,400
- UNIVERSITY OF DELAWARE, Newark; Charles B. Cooper; *An Experimental Investigation of Sputtering Using a Mass Spectrometer*; 2 years; \$13,200
- UNIVERSITY OF DENVER RESEARCH INSTITUTE, Colo.; Ed. N. Sickafus; *Microcalorimetry*; 1 year; \$19,500
- EMORY UNIVERSITY, Atlanta, Ga.; William C. Mallard; *Color Center Phenomena in X and Gamma Irradiated Alkali Halides*; 2 years; \$27,500
- GEORGE WASHINGTON UNIVERSITY, Washington, D.C.; Herbert Jehle; *Spinor Formulation of Kinematics, Mechanics, and Quantum Mechanics*; 2 years; \$16,900
- GRINNELL COLLEGE, Grinnell, Iowa; Roger J. Hanson; *Soft Gamma Background Radiation Near the Earth's Surface*; 2 years; \$8,900
- HARVARD UNIVERSITY, Cambridge, Mass.; Norman F. Ramsey; *Studies with the Atomic Hydrogen Maser*; 2 years; \$88,600
- HARVEY MUDD COLLEGE, Claremont, Calif.; Graydon D. Bell; *Spectroscopic Absorption Lines of Heavy Elements*; 2 years; \$28,200
- UNIVERSITY OF ILLINOIS, Urbana; Donald M. Ginsberg; *Properties of Superconductors*; 2 years; \$47,700
John D. Jackson; *Theoretical Studies of Fields and Particles*; 3 years; \$198,400
James S. Koehler; *Dislocations in Crystals*; 2 years; \$48,200
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- UNIVERSITY OF KANSAS, Lawrence; J. W. Culvahouse; *Spin-Spin and Spin-Lattice Interactions in Paramagnetic Materials at Low Temperatures*; 2 years; \$38,400
R. C. Sapp; *Nuclear Orientation at Low Temperatures*; 1 year; \$11,600
L. Worth Seagondollar; *Nuclear Energy Levels in Low and Medium Mass Range*; 1 year; \$19,700
- KENT STATE UNIVERSITY, Kent, Ohio; J. W. McGrath and Anthony A. Silvidi; *Magnetic Resonance Studies in Hydrated Crystals*; 2 years; \$37,700
- KENTUCKY RESEARCH FOUNDATION, Lexington; Vincent P. Kenney and William D. Shephard; *Bubble Chamber Studies in Pion Physics*; 2 years; \$119,800
- LAWRENCE COLLEGE, Appleton, Wis.; J. Bruce Brackenridge; *Transverse Oscillations of a Hydro-Jet*; 2 years; \$15,000

- LEHIGH UNIVERSITY, Bethlehem, Pa.; Peter Hayes; *Relativistic Theory of Interacting Particles*; 2 years; \$36,600
James A. McLennan, Jr.; *Non-Equilibrium Statistical Mechanics and the Many-Body Problem*; 2 years; \$41,000
Wesley R. Smith; *Chemical Kinetics in Gases and Aqueous Flame Studies*; 2 years; \$55,000
- LOUISIANA STATE UNIVERSITY, Baton Rouge; Richard W. Huggett; *Cosmic Ray Studies Using Nuclear Emulsions*; 2 years; \$47,200
- MANHATTAN COLLEGE, New York, N.Y.; Gabriel Kane; *High Energy Nuclear Emulsion Research*; 2 years; \$12,000
- UNIVERSITY OF MARYLAND, College Park; Thomas B. Day; *Elementary Particle Theory*; 2 years; \$25,900
Hans R. Griem; *Damping Constants and Oscillator Strengths of Astrophysical Interest*; 1 year; \$47,800
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge; Norman C. Rasmussen and Hans Mark; *Nuclear Gamma-Ray Energies*; 2 years; \$119,700
- UNIVERSITY OF MASSACHUSETTS, Amherst; Phillips R. Jones; *Inelastic Atomic Collisions Below 25 Kev*; 2 years; \$33,600
- MICHIGAN STATE UNIVERSITY, East Lansing; Julius S. Kovacs and Don B. Lichtenberg; *Theory of the Interactions of Mesons and Hyperons*; 2 years; \$27,700
- UNIVERSITY OF MICHIGAN, Ann Arbor; Wayne E. Hazen; *Nuclear Components of Air Showers*; 1 year; \$25,600
Wayne E. Hazen; *Direct Pair Production by Mu Mesons*; 15 months; \$7,700
Samuel Krimm; *Infrared Spectra of Macromolecules*; 3 years; \$84,600
Noah Sherman; *Theoretical Corrections to Electron Scattering*; 1 year; \$18,800
- UNIVERSITY OF MISSOURI, Columbia; Richard A. Anderson; *Energy Exchange in Collisions of the Second Kind*; 2 years; \$13,100
Nelson M. Duller and Densil M. Cooper; *High Energy Cosmic Ray Mu Mesons at Large Zenith Angles*; 15 months; \$10,700
- NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL, Washington, D.C.; John S. Coleman; *NAS-NRC Committee on Nuclear Science*; 2 years; \$32,600
- UNIVERSITY OF NEBRASKA, Lincoln; Saul T. Epstein, Paul A. Goldhammer, and Henry S. Valk; *Nuclear Structure and Elementary Particle Physics*; 1 year; \$23,000
Paul Goldhammer; *Properties of Nuclei and Nuclear Forces*; 8 months; \$11,500
- UNIVERSITY OF NEW MEXICO, Albuquerque; Walter M. Elsasser; *Mechanics and Statistics of Molecular Helices*; 2 years; \$33,600
John R. Green; *Cores of Extensive Cosmic Ray Air Showers*; 10 months; \$15,500
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- UNIVERSITY OF NORTH CAROLINA, Chapel Hill; Paul S. Hubbard; *Nuclear Magnetic Resonance*; 3 years; \$62,000
Richard C. Jarnagin and Marvin Silver; *The Nature of Charge Transport in Organic Substances*; 2 years; \$36,300
A. T. Stewart; *Positron Annihilation in Solids and Liquids*; 3 years; \$78,800
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- NORTHEASTERN UNIVERSITY, Boston, Mass.; Michael J. Glaubman; *Nuclear Spectroscopy*; 2 years; \$23,500
Roy Weinstein; *Mu-Meson Studies Usingodoscope Techniques*; 2 years; \$69,400
- NORTHWEST NAZARENE COLLEGE, Nampa, Idaho; Gilbert C. Ford; *Mass Spectrometer Studies*; 2 years; \$37,700
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; Laurie M. Brown and Richard H. Capps; *Field Theory and High Energy Physics*; 2 years; \$43,900
James H. Roberts; *Hyperfragments and Primary Cosmic Radiation*; 2 years; \$66,100
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Robert S. Witte; *Interrelated Volume and Surface Electronic Properties of Insulating Crystals*; 2 years; \$43,900
- OHIO STATE UNIVERSITY RESEARCH FOUNDATION, Columbus; J. G. Daunt; *Superfluidity and Zero Sound in Liquid Helium-Three*; 2 years; \$103,200
Clifford V. Heer; *Properties of Metals and Alloys Below Three Degrees Absolute*; 2 years; \$25,600
Clifford V. Heer; *Atomic Oscillators at Low Temperatures*; 3 years; \$49,400
- OHIO UNIVERSITY, Athens; Thomas S. Smith, Frederick A. Otter, Jr.; *Superconducting Alloys*; 2 years; \$25,400
- UNIVERSITY OF OKLAHOMA RESEARCH INSTITUTE, Norman; Richard G. Fowler; *The Positive Column of Low Pressure Discharge*; 2 years; \$24,000
Chun C. Lin and Edgar A. Rinehart; *Microwave Spectral Line Widths*; 2 years; \$29,700
- UNIVERSITY OF OREGON, Eugene; Bernd Crasemann; *Nuclear Energy Levels and Decay Schemes*; 2 years; \$17,100
- PENNSYLVANIA STATE UNIVERSITY, University Park; John A. Sruer and Arthur E. Woodward; *Dynamic Mechanical Behavior of High Polymers Over a Wide Temperature Range*; 2 years; \$22,400
- UNIVERSITY OF PENNSYLVANIA, Philadelphia; Kenneth R. Atkins; *Liquid Helium*; 2 years; \$48,000
Sherman Frankel; *Nuclear Spectroscopy*; 2 years; \$63,700
Henry Primakoff; *Theoretical Studies on Particle Interactions and Statistical Mechanics*; 3 years; \$212,000
William E. Stephens; *Establishment of a 10-Mev Tandem Accelerator Facility*; 1 year; \$45,100
William E. Stephens; *Tandem Accelerator Installation and Research-Instrumentation Development*; 6 months; \$200,000
C. W. Ufford; *Theoretical Problems in Atomic and Nuclear Spectroscopy*; 1 year; \$21,500
- UNIVERSITY OF PITTSBURGH, Pa.; Norman Austern, Elizabeth Baranger and Sydney Meshkov; *Theory of Structure and Properties of Nuclei*; 18 months; \$49,200

- PRINCETON UNIVERSITY, Princeton, N.J.; Thomas R. Carver; *Magnetic Resonance in Solids and Gases*; 3 years; \$108,300
A. S. Wightman; *Structure of Local Quantum Field Theory*; 15 months; \$26,000
- PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; Alexander N. Gerritsen; *Electron Transport Properties of Dilute Alloys*; 2 years; \$49,600
Masao Sugawara; *Interactions of Elementary Particles*; 2 years; \$24,000
- RENSSELAER POLYTECHNIC INSTITUTE, Troy, N.Y.; Hillard B. Huntington and Roger W. Shaw; *Pulsed Ultrasonic Studies in Solids*; 3 years; \$53,800
Heinrich A. Medicus and Paul F. Yergin; *Photonuclear Research*; 2 years; \$65,200
- RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK, Albany; Arnold M. Feingold and B. James Raz, Oyster Bay; *Theoretical Studies in Nuclear Structure*; 2 years; \$26,600
- UNIVERSITY OF ROCHESTER, N.Y.; Morton F. Kaplon; *Primary Cosmic Ray Flux Studies*; 2 years; \$153,300
- ROLLINS COLLEGE, Winter Park, Fla.; John S. Ross; *Hyperfine Structure and Isotope Shift*; 2 years; \$23,500
- RUTGERS, THE STATE UNIVERSITY, New Brunswick, N.J.; Richard J. Plano; *High Energy Elementary Particle Physics*; 1 year; \$77,200
- ST. BONAVENTURE UNIVERSITY, New York, N.Y.; Zachery O'Friel; *High Energy Physics Using Emulsions*; 3 years; \$7,400
- UNIVERSITY OF SOUTH CAROLINA, Columbia; Ronald D. Edge and A. P. French; *Purchase of a Neutron Generator*; 1 year; \$23,000
- UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles; John R. Holmes; *Electromagnetic Radiation from Plasmons in Thin Films*; 2 years; \$16,600
- SOUTHERN ILLINOIS UNIVERSITY, Carbondale; John A. Eisele; *Nuclear Spectroscopy of Rare Earth Radioactive Isotopes*; 2 years; \$39,800
Otis B. Young; *Emulsion Studies of Cosmic Radiation*; 2 years; \$9,800
- SOUTHERN MISSIONARY COLLEGE, Collegedale, Tenn.; Ray Hefferlin; *Determination of Oscillator Strengths*; 2 years; \$30,000
- STANFORD UNIVERSITY, Stanford Calif.; Walter E. Meyerhof; *Equipment Installation for Use with a 3-Mev Van de Graaff Accelerator*; 2 years; \$53,200
- STANFORD RESEARCH INSTITUTE, Menlo Park, Calif.; Felix T. Smith; *Quantum Mechanics of Molecular Rearrangements*; 2 years; \$34,800
- STATE UNIVERSITY OF IOWA, Iowa City; Max Dresden and Fritz Rohrlieh; *Field Theory and Its Applications*; 2 years; \$43,600
- STEVENS INSTITUTE OF TECHNOLOGY, Hoboken, N.J.; Snowden Taylor; *Emulsion Study of Elementary Particles*; 2 years; \$46,400
- STRACUSE UNIVERSITY RESEARCH INSTITUTE, N.Y.; Arnold Honig; *Paramagnetic Resonance at Very Low Temperatures*; 2 years; \$42,200
Nahmin Horwitz; *Properties of K-Minus Mesons*; 2 years; \$60,600
- UNIVERSITY OF TENNESSEE, Knoxville; D. T. King; *Multiple Production of Pions*; 2 years; \$41,400
- TEXAS AGRICULTURAL AND MECHANICAL RESEARCH FOUNDATION, College Station; Joe S. Ham; *Semiconduction of Organic Charge Transfer Complexes*; 2 years; \$19,400
- UNIVERSITY OF TEXAS, Austin; John D. Gavenda; *Ultrasonic Measurements of the Electronic Properties of Metals*; 2 years; \$22,800
A. Wilson Nolle; *Magnetic Resonance Absorption and Relaxation*; 3 years; \$48,000
- TULANE UNIVERSITY OF LOUISIANA, New Orleans; Robert H. Morriss; *An Electron Microscopic and Electron Diffraction Investigation of Metals in the Colloidal State*; 2 years; \$23,500
- U.S. OFFICE OF NAVAL RESEARCH, Washington, D.C.; Masatoshi Koshiba; *International Cooperative Emulsion Flight Project*; 1 year; \$81,000
- UNIVERSITY OF UTAH, Salt Lake City; B. G. Dick; *Theory of Metals and Ionic Crystals*; 2 years; \$34,600
- VALPARAISO UNIVERSITY, Valparaiso, Ind.; V. Hugo Schmidt; *Protonic Semiconductors*; 2 years; \$26,400
- UNIVERSITY OF VERMONT, Burlington; Albert D. Crowell; *A Radioactive Tracer and Work Function Study of the Chemisorption of Gases on Metals*; 1 year; \$13,200
- UNIVERSITY OF WASHINGTON, Seattle; Jay Gregory Dash; *Mossbauer Effect at Low Temperatures*; 1 year; \$16,500
Robert W. Williams, Young B. Kim and George E. Masek; *High Energy Physics*; 2 years; \$195,600
- WASHINGTON UNIVERSITY, St. Louis, Mo.; Michael W. Friedlander; *Primary Cosmic Radiation*; 3 years; \$53,300
Suraj N. Gupta; *Quantum Theory of Fields*; 2 years; \$32,000
- WESTERN RESERVE UNIVERSITY, Cleveland, Ohio; Leonard S. Kisslinger; *Pairing and Long Range Force in Nuclear Structure*; 2 years; \$19,200
- WILLAMETTE UNIVERSITY, Salem, Oreg.; Robert L. Purbrick; *Vibrational Constants of Diatomic Molecules*; 3 years; \$14,600
- WILLIAM MARSH RICE UNIVERSITY, Houston, Tex.; Harold E. Rorschack, Jr.; *Low Temperature Physics*; 2 years; \$36,700
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Leon Landovitz; *Theory of Elementary Particles*; 1 year; \$11,800
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Nicholas Hotton; *Permo-Triassic Reptiles of South Africa*; 8 years; \$32,200

Porter M. Kler; *Systematic Significance of Echinoid Spines*; 3 years; \$18,600

F. A. McClure; *Taxonomy of the Bamboos: Redefinition of the Genera*; 2 years; \$23,000

Allison R. Palmer; *Foreign Cambrian Trilobites With American Affinities*; 2 years; \$15,300

Lyman B. Smith; *Botanical Exploration in Southern Brazil*; 1 year; \$7,400

Ellis Yochelson; *Ordovician Gastropods of Norway and a Comparison of American and European Ordovician Gastropods*; 1 year; \$15,200

UNIVERSITY OF SOUTH CAROLINA, Columbia; James T. Penney; *Taxonomic Study of the Subfamily Meyeniinae*; 2 years; \$7,000

UNIVERSITY OF SOUTHAMPTON, Southampton, England; M. J. Delany; *Life Histories, Ecology and Systematics of the Small Mammals*; 3 years; \$5,900

UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles; Robert J. Menzies; *A Study on Abyssal Isopod Crustacea*; 2 years; \$25,300

Andrew Starrett; *Morphology of Bats*; 2 years; \$10,200

SOUTHERN ILLINOIS UNIVERSITY, Carbondale; John W. Crenshaw, Jr.; *Species Variation in Blood Protein Patterns*; 1 year; \$4,300

STATE UNIVERSITY OF IOWA, Iowa City; Grace S. Brush; *Classification of Fossil Coniferous Pollen and Its Significance*; 2 years; \$7,800

UNIVERSITY OF TENNESSEE, Knoxville; Arthur C. Cole, Jr.; *Revisionary Studies of the Ant Genus Pogonomyrma Mayr*; 2 years; \$5,200

TEXAS RESEARCH FOUNDATION, Renner; Donovan S. Correll; *Flora of Texas*; 2 years; \$21,500

TEXAS TECHNOLOGICAL COLLEGE, Lubbock; Dale J. Osborn; *Taxonomy and Distribution of Turkish Mammals*; 1 year; \$700

UNIVERSITY OF TEXAS, Austin; Robert K. Selander; *Comparative Study of Behavior in the Quisqualine Interida*; 1 year; \$6,700

B. L. Turner; *Biochemical-Systematic Studies in the Leguminosae, Genus Baptista*; 3 years; \$58,700

TULANE UNIVERSITY, New Orleans, La.; T. T. Earle; *Purchase of Herbarium Cases*; 1 year; \$5,000

Donald Eugene Stone; *A Biosystematic Study of the Genus *Carya**; 3 years; \$21,200

UNIVERSITY OF TULSA, Tulsa, Oklahoma; Harriet G. Barclay; *Systematics of the Paramos of South America*; 1 year; \$4,000

UNIVERSITY OF UTAH, Salt Lake City; William H. Behle; *Birds of Utah*; 1 year; \$7,500

John M. Legler; *Taxonomy and Distribution of Turtles in Central America*; 8 years; \$23,400

VANDERBILT UNIVERSITY, Nashville, Tenn.; Howard F. L. Rock; *Revision of the Genus *Helonium*, Section *Tetradus Compositae**; 1 year; \$3,000

VIRGINIA POLYTECHNIC INSTITUTE, Blacksburg; William W. Scott; *Taxonomy and Biology of Fungi Associated with Fish and Fish Eggs*; 2 years; \$15,600

WARNER PACIFIC COLLEGE, Portland, Oreg.; C. A. Hubbard; *Research in Siphonaptera (fleas)*; 5 years; \$12,000

UNIVERSITY OF WASHINGTON, Seattle; Melville H. Hatch; *Beetles of the Pacific Northwest*; 1 year; \$15,800

Grace E. Howard; *The Lichen Genus *Ochrolechia* in North America*; 8 years; \$3,500

Alan J. Kohn; *Systematics of Indo-West Pacific Marine Mollusks of the Family *Conidae**; 1 year; \$5,000

James E. Lynch; *Phyllopod Crustacea of Western North America*; 2 years; \$6,200

Daniel E. Stuntz; *North American Species of *Inocybe* (Mushrooms)*; 2 years; \$30,200

WASHINGTON UNIVERSITY, St. Louis, Mo.; Carroll W. Dodge; *Land Flora of the Antarctic Continent and Subantarctic Islands*; 2 years; \$14,300

Robert E. Woodson, Jr.; *Biometric Studies of the Butterfly Weed (*Asclepias tuberosa*)*; 1 year; \$5,800

WAYNE STATE UNIVERSITY, Detroit, Mich.; Morris Goodman and John Buettner-Janusch; *Effects of Speciation on Soluble Proteins of the Primates*; 3 years; \$34,600

WESTERN ILLINOIS UNIVERSITY, Macomb; Everett F. Morris; *Taxonomic Study of the Genus *Harpographium* and Related Forms of the *Stilbellaceae**; 1 year; \$2,000

Yale S. Sedman; *Revision of the Genus *Chrysogaster* in the New World*; 2 years; \$4,800

YALE UNIVERSITY, New Haven, Conn.; Alfred W. Ebeling; *The Bathypelagic Fish Family *Melamphidae**; 2 years; \$7,700

Peter Robinson; *A Study of the Eocene Mammal and Middle Eocene Insectivore Specimens at Yale*; 1 year; \$11,100

GENERAL BIOLOGY

UNIVERSITY OF ALASKA, College; William Ransom Wood; *A Study of the Feasibility of Establishing an Arctic Biological Research*

- Center at the University of Alaska; 1 year; \$34,600
- AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES, Washington, D.C.; Hiden T. Cox; *A Study of the Feasibility of the Centralization of the Plant Sciences*; 1 year; \$12,000
- AMERICAN TYPE CULTURE COLLECTION, Washington, D.C.; William Arthur Clark; *Support of Curatorial and Administrative Operations*; 8 years; \$99,750
Shuh-wei Hwang; *Techniques for Preservation of Pathogenic Fungi*; 3 years; \$61,080
- BAYLOR UNIVERSITY, Waco, Tex.; Stanley W. Olson, Houston; 3 years; \$21,600
- BERMUDA BIOLOGICAL STATION FOR RESEARCH, INC., St. George's West; W. H. Sutcliffe; *Summer Research Program in Experimental Marine Embryology*; 2 years; \$24,800
- BOSTON UNIVERSITY, Boston, Mass.; Arthur M. Lassek; *An Electron Microscope Unit for Basic Research*; 1 year; \$51,500
- UNIVERSITY OF BUFFALO, N.Y.; James A. English; *Short-Term Research by Medical (Dental) Students*; 3 years; \$4,320
- CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena; Anton Lang; *Support of Plant Research Program and Facilities*; 5 years; \$627,000
- UNIVERSITY OF CALIFORNIA, Berkeley; Geoffrey B. Bodman; *Electron Microscope for Research on Problems of Soils and Plant Diseases*; 5 years; \$42,000
J. B. deC. M. Saunders, San Francisco Medical Center; 1 year; \$12,960
- COLORADO STATE UNIVERSITY RESEARCH FOUNDATION, Fort Collins; John B. Rogan; *Infrared Spectrophotometer for Biochemical Research*; 1 year; \$5,800
- COLUMBIA UNIVERSITY, New York, N.Y.; Paul R. Burkholder, Palsades, N.Y.; *Equipment for a Marine Biology Research Laboratory*; 1 year; \$68,000
Aura Edward Severinghaus; *Short-Term Research by Medical Students*; 3 years; \$21,600
- DARTMOUTH COLLEGE, Hanover, N.H.; Henry L. Heyl; *Short-Term Research by Medical Students*; 3 years; \$8,640
- UNIVERSITY OF DELAWARE, Newark; Franklin C. Dalber; *Feasibility Study for a Biological Oceanographic Vessel and Supporting Shore Facilities*; 1 year; \$4,800
- DUKE UNIVERSITY, Durham, N.C.; E. Croft Long; *Short-Term Research by Medical Students*; 3 years; \$21,600
- UNIVERSITY OF FLORIDA, Gainesville; George T. Harrell; *Short-Term Research by Medical Students*; 3 years; \$6,480
- HAHNEMANN MEDICAL COLLEGE AND HOSPITAL, Philadelphia, Pa.; Harold A. Taggart; *Short-Term Research by Medical Students*; 3 years; \$12,960
- HIGHLANDS BIOLOGICAL STATION, INC., Highlands, N.C.; Thelma Howell and H. J. Oosting, Duke U.; *Biological Research and a Research Training Program*; 3 years; \$91,500
- UNIVERSITY OF HOUSTON, Tex.; A. H. Bartel; *Preparatory Centrifuge for Subcellular Biological Studies*; 1 year; \$7,800
- Sara E. Huggins; *Refrigerated Centrifuge for Biological Research*; 1 year; \$3,000
- HOWARD UNIVERSITY, Washington, D.C.; K. Albert Harden; *Short-Term Research by Medical Students*; 3 years; \$8,640
- UNIVERSITY OF ILLINOIS, Urbana; Wilson N. Stewart; *Equipment for Botanical Research*; 1 year; \$32,400
- MARQUETTE UNIVERSITY, Milwaukee, Wis.; Joseph W. Rastetter; *Short-Term Research by Medical Students*; 1 year; \$1,440
- UNIVERSITY OF MINNESOTA, Minneapolis; Robert B. Howard; *Short-Term Research by Medical Students*; 3 years; \$12,960
I. S. Isbin; *10,000 Curie Cesium-137 Source for Basic Research*; 1 year; \$25,000
William H. Marshall; *Summer Research at Lake Itasca Station*; 2 years; \$37,300
- NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL, Washington, D.C.; Frank L. Campbell; *Support for Organization of XVth International Congress of Zoology*; 2 years; \$35,650
Walter A. Rosenblith; *Committee on the Use of Electronic Computers in the Life Sciences*; 1 year; \$9,800
- UNIVERSITY OF NEBRASKA, Lincoln; J. P. Tollman, College of Medicine, Omaha; *Short-term Research for Medical Students*; 3 years; \$8,640
- UNIVERSITY OF NORTH CAROLINA, Chapel Hill; John N. Couch and William J. Koch; *Electron Microscopy Laboratories for Studies in Micology*; 1 year; \$24,200
- NORTHWESTERN UNIVERSITY, Evanston, Ill.; Allen Lein, The Medical School, Chicago; *Short-term Research by Medical Students*; 3 years; \$12,960
- PASADENA FOUNDATION FOR MEDICAL RESEARCH, Pasadena, Calif.; C. M. Pomerat; *Experimental Cytology using Cell Cultures*; 2 years; \$95,400
- RESEARCH FOUNDATION, OKLAHOMA STATE UNIVERSITY, Stillwater; Norman N. Durham; *Equipment for Research in Bacteriology and Associated Areas*; 1 year; \$14,800
- UNIVERSITY OF ROCHESTER, Rochester, N.Y.; Donald G. Anderson; *Short-term Research by Medical Students*, 3 years; \$21,600
- ROCKEFELLER INSTITUTE, New York, N.Y.; Fritz Lipmann; *Biosynthetic Mechanisms*; 5 years; \$750,000
- SOUTH DAKOTA STATE COLLEGE, Brookings; A. W. Halverson; *Amino Acid Analyzer for Biochemical Research*; 1 year; \$13,500
- UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles; Frederick J. Moore; *Short-term Research by Medical Students*; 3 years; \$17,280
- STANFORD UNIVERSITY, Stanford, Calif.; Lawrence R. Blinks; *Feasibility Study for the Conversion of the Schooner PIONEER to a Marine Biology Research Ship*; 1 year; \$5,000
- UNIVERSITY OF TENNESSEE, Knoxville; Aaron J. Ladman; *Fine Structure of Tissue Engaged in Synthesis and Transport during Development*; 5 years; \$230,600
- UNIVERSITY OF TEXAS; Austin; Fred J. Wolma, Galveston; *Short-term Research by Medical Students*; 3 years; \$17,280

TULANE UNIVERSITY OF LOUISIANA, New Orleans; Maxwell E. Lapham; *Short-term Research by Medical Students*; 3 years; \$17,280

UNIVERSITY OF UTAH, Salt Lake City; Phillip B. Price; *Short-term Research by Medical Students*; 3 years; \$12,960

VANDERBILT UNIVERSITY, Nashville, Tenn.; James W. Ward; *Short-term Research by Medical Students*; 3 years; \$21,600

UNIVERSITY OF VIRGINIA, Charlottesville; Oscar A. Thorup, Jr.; *Short-term Research by Medical Students*; 1 year; \$2,880

UNIVERSITY OF WASHINGTON, Seattle; Richard J. Blandau; *Short-term Research by Medical Students*; 1 year; \$3,600

WESTERN RESERVE UNIVERSITY, Cleveland Ohio; Harland G. Wood; *Mass Spectrometer for Biochemical Studies*; 1 year; \$20,000

UNIVERSITY OF WISCONSIN; Madison; F. E. Shideman; *Short-term Research by Medical Students*; 3 years; \$8,640

WOODS HOLE OCEANOGRAPHIC INSTITUTE, Woods Hole, Mass.; John H. Ryther; *Planning of a Program in Biology for the Indian Ocean Expedition*; 1 year; \$24,000

YESHIVA UNIVERSITY, New York, N.Y.; Alfred Gilman; *Short-term Research by Medical Students*; 3 years; \$17,280

SPECIALIZED FACILITIES

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, Pa.; H. Radclyffe Roberts; *Maintenance of Systematic Collections*; 3 years; \$75,000

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS, College Station; Fred J. Benson; *Expansion of a Computing Center*; 1 year; \$50,000

UNIVERSITY OF ALASKA, College; C. T. Elvey; *Construction of Optical Laboratory Building*; 1 year; \$20,000

AMERICAN TYPE CULTURE COLLECTION, Washington, D.C.; William Arthur Clark; *Permanent Facilities for the American Type Culture Collection*; 5 years; \$650,000

UNIVERSITY OF ARIZONA, Tucson; Edwin F. Carpenter; *Relocation of the 36-inch Steward Reflecting Telescope*; 1 year; \$120,000

UNIVERSITY OF CALIFORNIA, Berkeley; John E. Cushing, Santa Barbara; *Construction of the Research Portion of a Marine Laboratory Building*; 3 years; \$171,000

CAPE HAZE MARINE LABORATORY, Placida, Fla.; Eugenie Clark; *Relocation and Expansion of Marine Biological Laboratories*; 1 year; \$10,700

CHARLES DARWIN FOUNDATION FOR THE GALAPAGOS ISLES, Brussels, Belgium; Victor van Straelen; *Establishment of an International Biological Field Station in the Galapagos Isles*; 1 year; \$6,500

UNIVERSITY OF CHICAGO, Chicago, Ill.; Charles E. Olmsted; *Special Equipment for Controlled Environment Facilities for Plant Research*; 2 years; \$39,000

COLORADO STATE UNIVERSITY RESEARCH FOUNDATION, Fort Collins; David W. Robertson; *Expansion and Maintenance of a Barley Genetic Stock Center*; 5 years; \$60,200

UNIVERSITY OF COLORADO, Boulder; John W. Marr; *Improvement of Road and Support*

of Other Facilities for Mountain Field Stations; 1 year; \$1,500

DUKE UNIVERSITY, Durham, N.C.; D. K. Adams and P. H. Klopfer, *Establishment of a Field Station for Animal Behavior Studies*; 1 year; \$31,400

C. G. Bookhout; *Cooperative Research and Research Training Program in Biological Oceanography*; 5 years; \$618,282

Thomas M. Galle, Jr., John J. Gergen and Thomas D. Reynolds; *Expansion of Computing Center*; 3 years; \$60,000

EMORY UNIVERSITY, Atlanta, Ga.; C. G. Goodchild; *Construction of a Biological Field Station*; 1 year; \$18,200

FLORIDA STATE UNIVERSITY, Tallahassee; E. P. Miles, Jr.; *Expansion of Computing Center*; 1 year; \$200,000

HARVARD UNIVERSITY, Cambridge, Mass.; A. S. Romer; *Building Improvements for the Museum of Comparative Zoology*; 1 year; \$100,000

UNIVERSITY OF HAWAII, Honolulu; Robert W. Hiatt; *Construct and Equip an Institute of Geophysics*; 2 years; \$300,000

INDIANA UNIVERSITY FOUNDATION, Bloomington; Harrison Shull; *Establishment of Computing Center*; 1 year; \$285,000

INSTITUTE FOR CANCER RESEARCH, Philadelphia, Pa.; I. I. Oster; *Establishment and Maintenance of a Drosophila melanogaster Stock Center*; 5 years; \$124,800

LOS ANGELES COUNTY MUSEUM, Calif.; Theodore Downs; *New Research Wing for Vertebrate Paleontology*; 3 years; \$130,000

UNIVERSITY OF MIAMI, Coral Gables, Fla.; Friedrich F. Koczy, Miami; *Design of an Oceanographic Research Vessel*; 1 year; \$150,000

UNIVERSITY OF MINNESOTA, Minneapolis; E. H. Rinke, J. J. Christenson and W. P. Martin; *Controlled Climate Facility*; 2 years; \$80,000

NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY, Socorro; E. J. Workman; *Atmospheric Research and Weather Modification*; 2 years; \$200,000

OHIO WESLEYAN UNIVERSITY, Delaware; John D. Kraus; *Observatory Facility for 360-foot Radio Telescope*; 1 year; \$20,500

OREGON STATE COLLEGE, Corvallis; Arvid T. Lonseth, Louis N. Stone; *Construction of Computer (MANIAC III)*; 3 years; \$200,000

PENNSYLVANIA STATE UNIVERSITY, University Park; Donald T. Laird; *Establishment of Computing Center (IBM 7070)*; 1 year; \$200,000

UNIVERSITY OF PITTSBURGH, Pa.; Peter Gray; *Controlled Climate Facility*; 1 year; \$54,000

ROCKY MOUNTAIN BIOLOGICAL LABORATORY, Crested Butte, Colo.; Robert K. Enders; *Construction and Improvement of Research and Living Quarters*; 1 year; \$51,000

RUTGERS, THE STATE UNIVERSITY, New Brunswick, N.J.; M. F. Buell; *Growth Chambers for Experimental Work in Botany*; 1 year; \$15,000

SAN DIEGO SOCIETY OF NATURAL HISTORY, San Diego, Calif.; George E. Lindsay; *Establishment and Support of the Vermillion Sea Field Station*; 3 years; \$19,200

STANFORD UNIVERSITY, Stanford, Calif.; L. R. Blinks; *Modernization and Expansion of Marine Biological Laboratories*; 3 years; \$225,000

Rolf L. Bolin, Hopkins Marine Station, Pacific Grove; *Research and Graduate Training in Biological Oceanography*; 5 years; \$462,950

Robert Hofstadter; *Studies and Experiments on the Design of an Iron-Free Solenoidal Spectrometer*; 18 months; \$153,000

UNIVERSITY OF TEXAS, Austin; Howard T. Odum, Port Aransas; *Construction of a Boat Basin for Marine Research*; 1 year; \$8,550

David M. Young, Jr.; *Establishment of a Computing Center (CDO 1604)*; 1 year; \$400,000

UTAH STATE UNIVERSITY, Logan; William F. Sigler; *Construction of a Field Biology Laboratory at Bear Lake*; 1 year; \$25,000

UNIVERSITY OF WISCONSIN, Madison; W. R. Marshall, Jr.; *Establishment of Computing Center (CDO 1604)*; 1 year; \$400,000

WOODS HOLE OCEANOGRAPHIC INSTITUTION, Woods Hole, Mass.; Paul M. Fye; *Design and Construction of an Oceanographic Research Vessel*; 1 year; \$1,750,000

WORCESTER FOUNDATION FOR EXPERIMENTAL BIOLOGY, Shrewsbury, Mass.; Hudson Hoagland; *Reventilation of Laboratories and Associated Animal Quarters*; 1 year; \$114,000

CONTINUING ANTARCTIC RESEARCH

Aurora and Airglow

ARCTIC INSTITUTE OF NORTH AMERICA, Washington, D.C.; Norman J. Oliver; *Continuation of Aurora and Airglow Research in Antarctica*; 2 years; \$128,726

Norman J. Oliver; *Auroral Heights Measurement Program*; 2 years; \$57,480

Biology and Medicine

AMERICAN MUSEUM OF NATURAL HISTORY, New York, N.Y.; Robert Cushman Murphy; *Completion of a Biogeographic Study of the Petrels and Their Allies (Birds, Order Procellariiformes)*; 2 years; \$12,000

BERNICE P. BISHOP MUSEUM, Honolulu, Hawaii; J. Linsley Gressitt; *Studies of Airborne Organisms in the Antarctic Area*; 1 year; \$546

UNIVERSITY OF CALIFORNIA, Berkeley; Charles R. Goldman; *Studies on Basic Energy Sources and Pathways in Antarctic Ponds and Lakes*; 1 year; \$27,208

UNIVERSITY OF CALIFORNIA, Berkeley; Frank A. Pitelka; *Ecological and Behavioral Comparison of the Antarctic Skua with Closely Related Arctic Jaegers*; 1 year; \$9,799

JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; William J. L. Sladen and Carl R. Eklund; *USARP Bird-Banding Program*; 1 year; \$14,039

UNIVERSITY OF KANSAS, Lawrence; Rufus H. Thompson and Kenneth B. Armitage; *Biological Investigation of Fresh Water Lakes in Antarctica*; 6 months; \$1,192

OHIO STATE UNIVERSITY RESEARCH FOUNDATION, Columbus; W. L. Boyd; *Ecological Survey of Antarctic Bacteria*; 1 year; \$13,568

UNIVERSITY OF THE PACIFIC, Stockton, Calif.; Joel W. Hedgpeth; *Collecting and Studying Pycnogonida in Antarctica*; 1 year; \$550

UNIVERSITY OF PUERTO RICO, Rio Piedras; J. M. Cruxent; *Archaeological Survey in the Antarctic Region*; 1 year; \$1,601

STANFORD UNIVERSITY, Calif.; Donald E. Wohlaschlag; *Biological Laboratory at NAF McMurdo for the Continuing 1961 Biological and Medical Sciences Program*; 18 months; \$2,000

Donald E. Wohlaschlag; *Continuing Ecological and Physiological Studies of McMurdo Sound Marine Animals*; 1 year; \$48,499

UNIVERSITY OF TENNESSEE, Knoxville; Madison E. Pryor; *Analysis of Ecological Data Collected at Hallett Station*; 1 year; \$9,960

VIRGINIA FISHERIES LABORATORIES, Gloucester Pt.; William J. Hargis, Jr.; *A Study of Certain Parasites of Antarctic Vertebrates and Invertebrates*; 2 years; \$9,775

Consultation, Planning, and Modification

NATIONAL BUREAU OF STANDARDS, Washington, D.C.; F. W. Brown; *Design of Radio Antenna Complex for Floating Antarctic Research Station*; 1 year; \$20,000

F. W. Brown; *Study of Radio Noise Aboard the Ship to be Used as a Floating Antarctic Research Station*; 1 year; \$18,100

Cosmic Rays

BARTOL RESEARCH FOUNDATION OF THE FRANKLIN INSTITUTE, Swarthmore, Pa.; Martin A. Pomerantz; *Continuation of Investigations of Time Variations of the Primary Cosmic Radiation Near the South Geomagnetic Pole*; 1 year; \$89,650

UNIVERSITY OF MARYLAND, College Park; S. F. Singer; *Cosmic Ray Monitoring Station in the Antarctic*; 2 years; \$39,529

Geodesy and Cartography

U.S. DEPARTMENT OF THE INTERIOR, OFFICE OF GEOGRAPHY, Washington, D.C.; Meredith F. Burtill; *Standard Geographic Nomenclature in Antarctica for U.S. Use*; 1 year \$12,448

U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY, Washington, D.C.; Thomas B. Nolan; *Antarctic Mapping Operation Fiscal Year 1960-61*; 1 year; \$268,500

Thomas B. Nolan; *Plastic Relief Antarctic Map*; 1 year; \$26,200

Thomas B. Nolan; *Program for Antarctic Mapping Operations*; 1 year; \$304,000

Geology

UNIVERSITY OF KANSAS, Lawrence; Edward J. Zeller; *Determination of Age of Low Temperature Conditions in Antarctica by Thermoluminescence of Rocks*; 1 year; \$11,289

UNIVERSITY OF MINNESOTA, Minneapolis; Campbell Craddock; *Bedrock Geology and Geomorphology of the Sentinel Mountain Area, West Antarctica*; 18 months; \$85,080

Campbell Craddock; *Bedrock Geology of the Sentinel Mountain Chain and Northwest Marie Byrd Land, West Antarctica*; 1 year; \$59,220

OHIO STATE UNIVERSITY RESEARCH FOUNDATION, Columbus; Parker Calkin; *Glaacial and Bedrock Geology of the Mt. Gran Dry Valley Area, Antarctica*; 18 months; \$23,760

S. B. Treves; *Geological Investigation of Antarctic Horst Area*; 18 months; \$72,300

RUTGERS, THE STATE UNIVERSITY, New Brunswick, N.J.; J. C. F. Tedrow; *A Study of Pedologic Processes in Antarctica*; 1 year; \$16,387

U.S. DEPARTMENT OF THE INTERIOR, BUREAU OF MINES, Washington, D.C.; Thomas H. Miller; *Investigation of Methods and Conditions of Mineral Exploration and Evaluation of Mineral Potential in Isolated Areas such as Antarctica*; 1 year; \$11,210

U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY, Washington, D.C.; Thomas B. Nolan; *Systematic Areal Mapping, Geologic Reconnaissance, and Related Geologic Studies in Western Antarctica (Walgren-Eights Coast Project)*; 1 year; \$10,900

Thomas B. Nolan; *Systematic Areal Mapping, Geologic Reconnaissance, and Related Geologic Studies in Western Antarctica (Horlick Mountains Project)*; 1 year; \$77,742

Thomas B. Nolan; *Systematic Areal Mapping, Geologic Reconnaissance, and Related Geologic Studies in Western Antarctica (Thurston Island Traverse Project)*; 1 year; \$15,926

Thomas B. Nolan; *Systematic Geologic Mapping and Related Studies in the Horlick Mountains, West Antarctica*; 1 year; \$51,840

VICTORIA UNIVERSITY OF WELLINGTON, New Zealand; R. W. Balham; *Geologic Investigations in the Koettlitz Glacier Area*; 1 year; \$6,089

UNIVERSITY OF WISCONSIN, Madison; Robert F. Black; *Continued Study of Patterned Ground in the Antarctic*; 1 year; \$25,376

Robert H. Dott; *Stratigraphic and Tectonic Relationships of Western Antarctica and Lower Palmer Peninsula to the Andean Mobile Belt*; 1 year; \$5,108

Robert H. Dott; *Stratigraphic and Sedimentological Studies in the Antarctica Peninsula*; 1 year; \$39,470

Geomagnetism

U.S. COAST AND GEODETIC SURVEY, Washington 25, D.C.; Rear Admiral H. Arnold Karo; *Establishment of Chilean Magnetic Station*; 1 year; \$12,500

H. Arnold Karo; *U.S. Magnetic Observations, 1961-62, Antarctic*; 2 years; \$83,460

H. Arnold Karo; *USARP Magnetic Field Surveys in Antarctica, 1961-62*; 1 year; \$27,820

Glaciology

ARCTIC INSTITUTE OF NORTH AMERICA, Washington, D.C.; Robert C. Faylor; *Hardening and Strength Studies of Disaggregated Snow at Very Low Temperatures*; 1 year; \$4,920

UNIVERSITY OF MICHIGAN, Ann Arbor; James H. Zumberge; *Ross Ice Shelf Studies*; 1 year; \$61,886

UNIVERSITY OF MINNESOTA, Minneapolis; Edward Thiel; *Disturbed Geophysical Program in Antarctica*; 1 year; \$42,962

UNIVERSITY OF MISSOURI, Columbia; W. D. Keller; *A Study of Glacial Milk and Rock Flour from Antarctic Glaciers*; 1 year; \$14,684

OHIO STATE UNIVERSITY, Columbus; Richard L. Cameron; *Exchange Solenites, Antarctic*

Program for Research in Glaciology and Glacial Geology with USSR; 1 year \$27,837

Richard L. Cameron; *Analysis of IGY-IGO Antarctic Glaciological Data*; 2 years; \$24,378

R. P. Goldthwait; *Traverse Glaciology of Antarctic Firn*; 2 years; \$30,042

U.S. ARMY COLD REGIONS RESEARCH AND ENGINEERING LABORATORY, Wilmette, Ill.; James A. Bender; *Work in Antarctica 1960-61 Season*; 1 year; \$8,200

James A. Bender; *Work in Antarctica 1961-1962 Season*; 1 year; \$13,310

Gravity

UNIVERSITY OF WISCONSIN, Madison; George P. Woollard; *Gravimetric Connections and Magnetic Observations Between Key Points in Antarctica*; 2 years; \$42,367

Ionospheric Physics

UNIVERSITY OF CALIFORNIA, Berkeley; Robert R. Brown; *Conjugate Point Measurements of High Altitude Radiation Effects in the Geomagnetic Field*; 18 months; \$68,357

NATIONAL BUREAU OF STANDARDS, Washington, D.C.; Fred Brown; *Study of Ionospheric Absorption at Mirny Base, Antarctica, Using the Cosmic Noise Method*; 2 years; \$66,900

F. W. Brown; *Continuation of the Vertical-Incidence Antarctic Ionospheric Program*; 2 years; \$161,200

STANFORD UNIVERSITY, Stanford, Calif.; R. A. Hellwell; *Continuation Studies of VLF Phenomena in the Antarctic*; 2 years; \$136,248

Meteorology

UNIVERSITY OF CALIFORNIA, Berkeley; Charles D. Keeling; *A Study of the Abundance of Carbon Dioxide in the Atmosphere over Antarctica*; 2 years; \$21,360

U.S. ARMY ORDNANCE, Aberdeen Proving Ground, Md.; John A. Brown; *Study of the Vertical Profile of Water Vapor in the Antarctic*; 1 year; \$8,500

U.S. WEATHER BUREAU, Washington, D.C.; F. W. Reichelderfer; *Antarctic Meteorological Research Program—1961*; 30 months; \$186,365

F. W. Reichelderfer; *Antarctic Meteorological Research Program*; 2 years; \$548,108

F. W. Reichelderfer; *Atmospheric-Oceanic-Glaciologic Interaction in an Antarctic Interdisciplinary Research Program*; 1 year; \$110,531

F. W. Reichelderfer; *International Antarctic Analysis Center, United States Participation*; 2 years; \$43,390

Oceanography

COLUMBIA UNIVERSITY, New York, N.Y.; W. S. Broecker, Pallsades; *Radioisotope Studies in the Oceans with Special Emphasis on the Antarctic*; 1 year; \$35,580

FLORIDA STATE UNIVERSITY, Tallahassee; H. G. Goodell, D. S. Gorsline, and J. K. Osmond; *Analysis of Oceanic Bottom Sediments from Operation Deep Freeze*; 1 year; \$40,704

TEXAS AGRICULTURAL AND MECHANICAL RESEARCH FOUNDATION, College Station; Donald W. Hood; *Calcium Carbonate Saturation Level of the Ocean from Latitudes of*

North America to Antarctica; 1 year; \$17,970

Dale F. Leipper and Luis Capurro; *Surface and Deep Current Measurement in the Drake Passage*; 2 years; \$50,785

U.S. ARMY COLD REGIONS RESEARCH AND ENGINEERING LABORATORY, Willmette, Ill., William L. Nungesser; *Continuation of Calendar Year 1961 Phase of Deep Thermal Core Drilling in Ice Project*; 1 year; \$17,350

U.S. NAVY HYDROGRAPHIC OFFICE, Washington D.C.; Admiral E. C. Stephan; *Ship-based Oceanographic Studies in Antarctica and Sub-Antarctic Regions*; 1 year; \$94,616

YALE UNIVERSITY, New Haven, Conn.; Karl K. Turekian; *The Distribution of Rubidium, Strontium, Cesium and Barium in Oceanic Vertical Profiles with Special Emphasis on the Antarctic*; 1 year; \$13,620

Polar Research Center

OHIO STATE UNIVERSITY RESEARCH FOUNDATION, Columbus; Richard P. Goldthwait; *Institute of Polar Studies*; 1 year; \$33,887

UNIVERSITY OF WISCONSIN, Madison; George P. Woollard; *Continuation of Geophysical and Polar Research Center at The University of Wisconsin*; 1 year; \$65,950

Related Scientific Support

ARCTIC INSTITUTE OF NORTH AMERICA, INC., Washington, D.C.; *Transfer of Title of a Station Wagon from the Foundation to the Arctic Institute of North America, Inc.*; (0-157)

A. P. Crary; *Chief Scientist, U.S. Antarctic Research Program*; 1 year; \$19,560

NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL, Washington, D.C.; Harold J. Coolidge; *Tenth Pacific Science Congress*; 1 year; \$5,900

Seismology

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena; Hugo Benloff; *Operation, Upkeep, Replacement of South American Earth Strain Stations at Nana, Peru, and Santiago, Chile*; 1 year; \$12,636

COLUMBIA UNIVERSITY, New York, N.Y.; Maurice Ewing; *Seismic Reflection Measurements in High Southern Latitudes*; 1 year; \$57,672

U.S. COAST AND GEODETIC SURVEY, Washington, D.C.; H. Arnold Karo; *Antarctic Seismological Observatories, 1961-62*; 1 year; \$10,700