APPENDIX II

Research Support Program

Research Grants by Fields of Science

	Number	Amount
Biological and Medical Sciences:		
Developmental biology	9	$66,975
Environmental biology	4	25,060
Genetic biology	5	86,800
Microbiology	9	93,000
Molecular biology	9	114,500
Psychobiology	2	23,300
Regulatory biology	15	173,800
Systematic biology	11	106,480
General	4	72,760
Total	68	762,675
Mathematical, physical and engineering sciences:		
Astronomy	1	8,000
Chemistry	13	146,800
Earth sciences	3	23,700
Engineering	3	41,900
Mathematics	1	19,300
Physics	8	71,600
Total	29	311,300
Total Research Grants	97	1,073,975

BASIC RESEARCH GRANTS AWARDED IN FISCAL YEAR 1952

Astronomy

University of Minnesota, Minneapolis, Minn.; Dr. Willem J. Luyten, Department of Astronomy; *Astronomical Research: Motions of the Stars;* 2 years; $8,000.

Chemistry

Carnegie Institute of Technology, Pittsburgh, Pa.; Dr. Frederick D. Rossini, Department of Chemistry; *Heats of Formation of Chemical Compounds;* 2 years; $21,500.

Georgia Institute of Technology, Atlanta, Ga.; Dr. Jack Hine, School of Chemistry; *The Effect of Halogen Atoms on the Reactivity of Other Halogen Atoms in the Same Molecule;* 1 year; $5,500.

THE UNIVERSITY OF KANSAS, Lawrence, Kans.; Dr. William E. McEwen, Department of Chemistry; *Relative Rates of Migration of Aryl-Groups in the Schmidt Reaction;* 2 years; $5,500.

UNIVERSITY OF LOUISVILLE, Louisville, Ky.; Dr. Richard H. Wiley, Department of Chemistry; *Chemistry of 2-Pyrones;* 3 years; $14,400.

UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; Dr. Bryce L. Crawford, Jr., Department of Physical Chemistry; *A Study of Force Constants in Unsaturated Molecules;* 1 year; $6,900.

UNIVERSITY OF NEBRASKA, Lincoln, Nebr.; Dr. Norman H. Cromwell, Department of Chemistry; *Stereochemistry and Hyperconjugation of Three-Ring Carbonyl Compounds;* 2 years; $13,700.

UNIVERSITY OF NORTH DAKOTA, Grand Forks, N. Dak.; Morton E. Milberg, Department of Chemistry; *The Properties of Vanadium Tetrachloride and Its Solutions;* 1 year; $3,000.

NORTHWESTERN UNIVERSITY, Evanston, Ill.; Dr. Fred Basolo, Department of Chemistry; *Preparation and Properties of Complex Compounds Containing Coordinated Fluoride Ions;* 2 years; $6,100.

PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; Dr. Herbert C. Brown, Department of Chemistry; *Investigation of Effect of Structure on Chemical Reactivity Using Molecular Addition Compounds;* 2 years; $25,300.

TENNESSEE AGRICULTURAL AND INDUSTRIAL STATE UNIVERSITY, Nashville, Tenn.; Dr. Carl M. Hill, Department of Chemistry; *Reaction of Alpha, Beta-Unsaturated Ethers with Grignard Reagents;* 1 year; $6,600.

UNIVERSITY OF TEXAS, Austin, Tex.; Dr. Kenneth A. Kobe, Department of Chemical Engineering; *Critical Properties of Some Organic Compounds;* 2 years; $15,400.

UNIVERSITY OF UTAH, Salt Lake City, Utah; Dr. Randall E. Hamm, Department of Chemistry; *Solution Chemistry of Complex Ions;* 2 years; $14,700.

YALE UNIVERSITY, New Haven, Conn.; Dr. Benton B. Owen, Department of Chemistry; *Dielectric Constant of Water at High Pressures;* 1 year; $8,200.

Developmental Biology

CATHOLIC UNIVERSITY OF AMERICA, Washington, D. C.; Dr. W. Gardner Lynn, Department of Biology; *Control of Metamorphosis in Hyla Brunnea;* 4 months; $1,000.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE, Boulder, Colo.; Heinz Herrmann, Department of Pediatrics; *Embryonic Development and Maturation of Muscle Tissue;* 2 years; $20,000.

UNIVERSITY OF ILLINOIS, Urbana, Ill.; Dr. S. Meryl Rose, Department of Zoology; *Growth and Cellular Transformation During Regeneration in Amphibia;* 1 year; $4,600.

INDIANA UNIVERSITY, Bloomington, Ind.; Dr. James D. Ebert, Department of Zoology; *Origin of Tissue-Specific Proteins in the Chick Embryo;* 3 years; $16,500.

STATE UNIVERSITY OF IOWA, Iowa City, Iowa; Dr. J. Davies, Department of Anatomy, College of Medicine; *Anatomy and Physiology of the Kidneys and Placentae of the Mammalian Embryo;* 1 year; $600.

MIAMI UNIVERSITY, Oxford, Ohio; Dr. John R. Harrison, Department of Zoology; *Growth and Differentiation of the Pigment Layer of the Retina;* 2 years; $3,675.

UNIVERSITY OF MISSISSIPPI, University, Miss.; Dr. I. C. Kitchin, Department of Biology; *Culture of the Intact Amphibian Neural System as an Isolated Explant;* 2 years; $10,300.

TEXAS AGRICULTURAL EXPERIMENT STATION, College Station, Tex.; Dr. James Nevin Weaver, Department of Entomology; *Nutritional Factors in Differentiation of the Honeybee;* 5 years; $7,100.

WABASH COLLEGE, Crawfordsville, Ind.; Dr. Louis E. DeLanney, Department of Zoology; *Causative Factors in the Development of the Spleen;* 2 years; $3,200.

Earth Sciences

UNIVERSITY OF MIAMI, Coral Gables, Fla.; Robert N. Ginsberg, Marine Laboratory; *Geological Role of Certain Blue-Green Algae;* 1 year; $4,700.

OBERLIN COLLEGE, Oberlin, Ohio; Dr. Paul B. Sears et al.; *Continuous History of Forest and Climate Extending Into the Pleistocene;* 1 year; $12,000.

WEST VIRGINIA UNIVERSITY, Morgantown, W. Va.; Dr. Milton T. Heald, Department of Geology; *Determination of Factors Which Govern Mineral Changes in Sandstone;* 2 years; $7,000.

Engineering

BROWN UNIVERSITY, Providence, R. I.; Dr. Daniel C. Drucker, Graduate Division of Applied Mathematics; *Research in Three Dimensional Photoelastic Techniques;* 2 years; $10,000.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, Mass.; Dr. John G. Trump, Department of Electrical Engineering; *Fundamental Processes in High Voltage Breakdown in Vacuum;* 2 years; $16,400.

PENNSYLVANIA STATE COLLEGE, State College, Pa.; Dr. J. A. Sauer, Department of Engineering Mechanics; *Mechanical Behavior and Structure of Linear High Polymers;* 1 year; $15,500.

Environmental Biology

MICHIGAN STATE COLLEGE, East Lansing, Mich.; Dr. G. W. Prescott, Department of Botany; *Ecological Survey of Alpine and Arctic Algae in Relation to Glaciation and the Disjunctive Distribution of Phenarogams;* 1 year; $3,900.

UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; Dr. Ernst C. Abbe, Department of Botany; *Phytogeography of the American Arctic and Subarctic;* 2 years; $9,700.

UNIVERSITY OF NEW MEXICO, Albuquerque, N. Mex.; Dr. C. Clayton Hoff, Department of Biology; *Effect of Elevation on Distribution of Insect and Arachnid Groups;* 3 years; $7,500.

ST. LOUIS UNIVERSITY, St. Louis, Mo.; Dr. Basile J. Luyet, Institute of Biophysics; *Survival of Vitrified and Dried Tissues and Organisms;* 1 year; $3,960.

Genetic Biology

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Dr. Max Delbruck, Division of Biology; *Mechanisms Underlying Genetic Recombination in Bacteria;* 1 year; $5,500.

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Dr. Frits W. Went, Division of Biology; Earhart Plant Research Laboratory; *Differences among Races and Varieties of Higher Plants;* 3 years; $21,700.

UNIVERSITY OF CALIFORNIA, Berkeley, Calif.; Dr. I. M. Lerner and E. R. Dempster, Division of Poultry Husbandry and Genetics, respectively; *Polygenic Variability;* 5 years; $50,000.

INDIANA UNIVERSITY, Bloomington, Ind.; Dr. Charles B. Heiser, Jr., Department of Botany; *Variation and Speciation in Sunflowers;* 3 years; $5,300.

UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; Dr. John R. Preer, Jr., Department of Zoology; *Genetic Cytoplasmic Factor in Protozoa;* 1 year; $4,300.

Mathematics

PURDUE RESEARCH FOUNDATION, Lafayette, Ind.; Dr. Lamberto Cesari, Department of Mathematics; *Asymptotic Behavior and Stability Problems;* 2 years; $19,300.

Microbiology

BROOKLYN COLLEGE, Brooklyn, N. Y.; Dr. George S. Tulloch, Department of Biology; *The Nature of Certain Ultramicroscopic Bodies Associated with Insects;* 1 year; $3,600.

BRYN MAWR COLLEGE, Bryn Mawr, Pa.; Dr. Rosalie C. Hoyt, Physics Department; *Bioelectric Behavior in Filamentous Algae, Investigated With the Aid of a New Analogue Computer;* 1 year; $3,400.

UNIVERSITY OF ILLINOIS, Urbana, Ill.; Dr. Robert Emerson, Department of Botany; *Carbon Dioxide Exchange During the Induction Period of Photosynthesis;* 3 years; $18,600.

UNIVERSITY OF ILLINOIS, Urbana, Ill.; Dr. Elliot Juni, Department of Bacteriology; *Mode of Action of Cocarboxylase in Carbohydrate Metabolism;* 3 years; $17,200.

INDIANA UNIVERSITY, Bloomington, Ind.; Dr. J. L. Stokes, Department of Bacteriology; *Investigations of the Iron Bacteria and of Chemoautotrophy;* 3 years; $17,400.

UNIVERSITY OF MARYLAND, College Park, Md.; Dr. Michael J. Pelczar, Jr., Department of Bacteriology; *Microbiological Degradation of Lignin;* 1 year; $5,500.

WABASH COLLEGE, Crawfordsville, Ind.; Dr. Willis H. Johnson, Department of Biology; *Nutritive Requirements of Paramecium Multimicronucleata;* 2 years; $3,100.

YALE UNIVERSITY, New Haven, Conn.; Dr. Paul R. Burkholder, Department of Plant Science; *Development of National Culture Collection of Algae;* 3 years; $10,000.

YALE UNIVERSITY, New Haven, Conn.; Dr. Victor M. Cutter, Jr., Department of Plant Science; *Isolation and Culture of Plant Rusts;* 3 years; $9,900.

YALE UNIVERSITY, New Haven, Conn.; Dr. Wolf Vishniac, Department of Microbiology; *Enzymatic Reactions in Photosynthesis and Chemosynthesis;* 1 year; $7,700.

Molecular Biology

UNIVERSITY OF LOUISVILLE, Louisville, Ky.; Dr. John Fuller Taylor, School of Medicine, Department of Biochemistry; *Enzymes Associated With Phospholipids and Nucleic Acids;* 2 years; $17,500.

MOUNT SINAI HOSPITAL, New York, N. Y.; Dr. J. D. Chanley, Department of Chemistry; *Reaction Mechanism of Aromatic Phosphoric Ester Hydrolysis;* 3 years; $12,200.

UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.; Dr. Britton Chance, Johnson Foundation for Medical Physics; *Components of Blood;* 3 years; $37,100.

TEXAS A. & M. RESEARCH FOUNDATION, College Station, Tex.; Dr. Raymond Reiser, Department of Biochemistry and Nutrition, Texas Agricultural Experiment Station; *Tracer Studies on Glyceride Absorption and Transport;* 3 years; $16,000.

TULANE UNIVERSITY OF LOUISIANA, New Orleans, La.; Dr. Robert T. Nieset, Biophysics Laboratory; *Isotopic Studies on Nitrogen and Sulphur Metabolism;* 2 years; $11,500.

UNIVERSITY OF VERMONT, Burlington, Vt.; Dr. Thomas Sproston, Jr; Department of Botany; *The Role of Naturally Occurring 1,4–Naphthoquinones in Disease Resistance and Metabolism of Impatiens Balsamina L.;* 3 years; $6,500.

UNIVERSITY OF WISCONSIN, Madison, Wis.; Dr. Robert A. Alberty, Department of Chemistry; *Molecular Kinetics and Chemical Kinetics of Fumarase;* 1 year; $9,000.

YALE UNIVERSITY, New Haven, Conn.; Dr. G. Evelyn Hutchinson, Department of Zoology; *Amino Acid Analyses of the Water, Mud, and Organisms of Lakes;* 1 year; $1,400.

Physics

HAVERFORD COLLEGE, Haverford, Pa.; Louis C. Green, Strawbridge Observatory; *Transition Probabilities in the X-Ray Continua of Singly Ionized Potassium;* 4 months; $2,800.

UNIVERSITY OF MISSOURI, Columbia, Mo.; Dr. Arthur R. Laufer, Department of Physics; *Acoustic Cavitation Research;* 2 years; $31,700.

UNIVERSITY OF NEW MEXICO, Albuquerque, N. Mex.; Dr. John R. Green and Dr. Victor H. Regener, Department of Physics; *Nature of Penetrating Showers in Cosmic Radiation;* 1 year; $4,500.

PENNSYLVANIA STATE COLLEGE, State College, Pa.; Dr. Arthur H. Waynick, Ionosphere Research Laboratory; *Upper Atmosphere Research Using Long-Radio-Wave Pulse Techniques;* 1 year; $12,800.

REED COLLEGE, Portland, Oreg.; Dr. Frederick C. Brown, Department of Physics; *Conduction and Trapping Processes in Ionic Crystals;* 1 year; $3,500.

REED COLLEGE, Portland, Oreg.; Dr. Kenneth E. Davis, Department of Physics; *Study of Cosmic Rays;* 2 years; $6,200.

ST. OLAF COLLEGE, Northfield, Minn.; Dr. Marvin E. Wyman, Department of Physics; *Mechanism of Transport Through Living and Non-Living Membranes;* 1 year; $4,300.

ST. LOUIS UNIVERSITY, St. Louis, Mo.; Dr. Vincent P. Jacobsmeyer, Department of Physics; *Photoconduction and Photoemission of Boron;* 2 years; $5,800.

Psychobiology

KANSAS STATE COLLEGE, Manhattan, Kans.; Dr. Howard E. Evans, Department of Entomology; *Behavior Patterns of Solitary Hymenoptera;* 3 years; $9,500.

INDIANA UNIVERSITY, Bloomington, Ind.; Dr. W. K. Estes and Dr. C. J. Burke, Department of Psychology; *Mathematical Models for Behavior Data;* 2 years; $13,800.

Regulatory Biology

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Dr. James Bonner, Division of Biology; *Photoperiodism and Vernalization;* 2 years; $17,700.

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Dr. James Bonner, Division of Biology; *The Biochemistry of Plant Growth;* 1 year; $10,500.

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Dr. Arthur W. Galston, Division of Biology; *Auxin Physiology;* 1 year; $5,000.

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, Calif.; Dr. C. A. G. Wiersma, Division of Biology; *The Central Nervous System of Lower Animal Forms;* 2 years; $13,300.

UNIVERSITY OF CALIFORNIA, Los Angeles, Calif.; Dr. Theodore Holmes Bullock, Department of Zoology; *Neurological Responses to Infra-Red Radiation;* 1 year; $5,300.

INSTITUTE FOR CANCER RESEARCH, Philadelphia, Pa.; Dr. Sidney Weinhouse, Department of Metabolic Chemistry; *Anterior Pituitary Hormone Effects on Fatty Acid Metabolism;* 3 years; $10,300.

STATE UNIVERSITY OF IOWA, Iowa City, Iowa; Dr. Robert P. Muir, Department of Botany; *Chemical Structure and Physiological Activity of Plant Growth-Regulators;* 2 years; $7,700.

JOHNS HOPKINS UNIVERSITY, Baltimore, Md.; Dr. Manfred M. Mayer, School of Hygiene and Public Health; *Cytotoxic Reactions Mediated by Antibody and Complement;* 3 years; $41,400.

PRINCETON UNIVERSITY, Princeton, N. J.; Dr. W. W. Swingle, Department of Biology; *Isolation, Bioassay and Physiological Properties of the Amorphous Fraction of Adrenal Cortical Extracts;* 2 years; $11,500.

UNIVERSITY OF TENNESSEE, Knoxville, Tenn.; Dr. D. Frank Holtman, Department of Bacteriology; *Role of Amino Acids in the Host-Parasite Relationship;* 1 year; $5,000.

TUSKEGEE INSTITUTE, The Carver Foundation, Tuskegee Institute, Ala.; Dr. James H. M. Henderson, Research Associate; *Mechanism of Action of Plant Growth Regulators;* 2 years; $16,600.

VANDERBILT UNIVERSITY, Nashville, Tenn.; Dr. Frank R. Blood, School of Medicine; *Nutrition and Biochemistry of the Bat;* 1 year; $4,600.

UNIVERSITY OF WISCONSIN, Madison, Wis.; J. W. Williams, Department of Chemistry; *Kinetic Methods for Determination of the Valence of Precipitating Antibodies;* 2 years; $14,200.

UNIVERSITY OF WISCONSIN, Madison, Wis., Dr. F. M. Strong, Department of Biochemistry; *Chemistry and Metabolism of Biologically Active Substances;* 1 year; $5,000.

YALE UNIVERSITY, New Haven, Conn.; Dr. Grace E. Pickford, The Bingham Oceanographic Laboratory; *Response of Some Lower Vertebrates to Hormones;* 2 years; $5,700.

Systematic Biology

CHICAGO NATURAL HISTORY MUSEUM, Chicago, Ill.; Jose Cuatrecasas, Department of Botany; *Taxonomic Study of the Tropical Plants of Colombia;* 3 years; $25,000.

DEPAUW UNIVERSITY, Greencastle, Ind.; Dr. Truman G. Yuncker, Department of Botany; *Botanical Survey of the Tongan Islands;* 18 months; $3,000.

UNIVERSITY OF HAWAII, Honolulu, Territory of Hawaii; Dr. D. Elmo Hardy, College of Agriculture, Department of Entomology; *Diptera of Hawaii;* 3 years; $19,000.

STATE UNIVERSITY OF IOWA, Iowa City, Iowa; Dr. G. W. Martin, Department of Botany; *Fungi of Panama;* 1 year; $2,100.

INDIANA UNIVERSITY, Bloomington, Ind.; Dr. Frank N. Young, Zoology Department; *Biometry and Taxonomy of Aquatic Beetles;* 18 months; $2,400.

UNIVERSITY OF KANSAS, Lawrence, Kans.; Dr. E. Raymond Hall and Dr. Rollin H. Baker, Department of Zoology; *Speciation of North American Mammals;* 3 years; $23,900.

UNIVERSITY OF MINNESOTA, Minneapolis, Minn.; Dr. John W. Hall, Department of Botany; *Coal Ball Floras;* 2 years; $780.

UNIVERSITY OF MISSISSIPPI, University, Miss.; Dr. Frank Montgomery Hull, Department of Biology; *Taxonomy and Phylogeny of Diptera;* 2 years; $9,000.

TULANE UNIVERSITY, New Orleans, La.; Dr. Fred R. Cagle, Graduate Department of Zoology; *Speciation in the Genus Graptemys;* 2 years; $14,200.

UNIVERSITY OF TULSA, Tulsa, Okla.; Dr. Albert P. Blair, Zoology Department; *Relationships of Selected Species of Bufonidae in the Southwestern United States;* 1 year; $2,300.

YALE UNIVERSITY, New Haven, Conn.; Dr. John R. Reeder, Department of Plant Science; *Embryos of Gramineae as an Aid in Classification and Phylogeny;* 2 years; $4,800.

General

NATIONAL ACADEMY OF SCIENCES, Washington, D. C.; Pacific Science Board; *Operating Expenses of the Pacific Science Board;* 2 years; $24,000.

NATIONAL ACADEMY OF SCIENCES, Washington, D. C.; Elmer G. Butler, Chairman, National Research Council Committee on the Naples Station; *American Table at the Naples Zoological Station;* 2 years; $2,260.

SMITH COLLEGE, Northampton, Mass.; Albert F. Blakeslee, Genetics Experiment Station; *Life Processes in Plants;* 2 years; $12,000.

STANFORD UNIVERSITY, Stanford, Calif.; L. R. Blinks, Hopkins Marine Station; *Basic Biology of Marine Organisms;* 3 years; $34,500.

GUIDE FOR THE SUBMISSION OF RESEARCH PROPOSALS

Introduction

The National Science Foundation, established by the National Science Foundation Act of 1950, is authorized to support basic scientific research in the mathematical, physical, medical, biological and engineering sciences, by making grants for such research to educational, industrial, governmental or other institutions, or individuals. The policy of the Foundation ordinarily is to award grants to institutions for research by specified individuals.

Proposals

The Foundation is now in a position to evaluate proposals for basic research grants and to make grants within the limits of available funds. Proposals are usually initiated by the scientist interested in carrying out the work. He may submit a proposal at once, or he may first choose to discuss the project informally, either by letter or in person, with an appropriate staff member of the Foundation. In the latter case a proposal will usually follow the preliminary discussion. Emphasis in the review of proposals is placed by the Foundation on the scientific merit of the suggested research, including the competence of the investigator.

Establishing the Amount of the Grant

In considering the budget for a grant the Foundation recognizes that substantial contributions are made by the grantee in such forms as space, equipment, library facilities, and, in many cases, in payment of the salary of the principal investigator. The Foundation will normally provide sufficient funds in the grant for such items as the salaries of personnel, materials, equipment, necessary travel, publication, and other direct costs. In addition, the grant will normally be sufficient to cover indirect costs up to 15 percent of the total direct costs covered by the grant.

Payment of the Award

Payments will be made in advance on a quarterly, semiannual, or annual basis depending on the relative size of the total grant.

Equipment

The Foundation will not normally require that title to equipment purchased with granted funds vest in the Government; such equipment may thus be retained by the grantee. No accounting for equipment will be necessary.

Reporting

The Foundation desires to be kept adequately informed of the progress of work covered by the grant and of the use of funds made available thereby. Normally this policy would be satisfied by filing of an annual progress report and a final report on the research work, and quarterly or semiannual financial reports. Publication of research papers is encouraged as appropiate, and may take the place of progress or final reports.

Security

In cases where there is a reasonable chance that information may be developed that should be classified in the interest of the national security, clearance may be required for investigators on the project. When, in the judgment of the principal investigator, information is developed that should be classified, he should notify the Foundation immediately.

Express Conditions

The typical grant instrument will contain express conditions which, upon acceptance of the grant, will bind the grantee. These conditions relate to the nature and scope of the research, revocation of the grant, return of unused funds, and patent rights.

Suggestions for Preparing a Research Proposal

The Foundation does not recommend any specific form for proposals at this time. The handling of proposals is facilitated, however, if they are submitted in 15 copies on letter size paper to the National Science Foundation, Washington 25, D. C. It is also suggested that proposals cover the following points insofar as they may be applicable:

1. *Name and address of institution.*
2. *Name of principal investigator.*
3. *Title of proposed research.*
4. *Description of proposed research.* A description of the work to be undertaken, its objectives and its relation to the present state of knowledge in the field and to comparable work in progress elsewhere, together with pertinent literature citations should be included.
5. *Procedure.* This should consist of an outline of the general plan of the work, including design of experiments to be undertaken, if any, and the procedure to be followed.
6. *Facilities.* Facilities and major items of permanent equipment that are available should be described.
7. *Personnel.* A short biographical sketch and a bibliography of the principal investigator and other professional personnel should be included.
8. *Budget.* The budget should comprise an estimate of the total cost of the project and a statement of its proposed duration, with a breakdown of costs for each year. Funds requested from the Foundation should be indicated for each of the categories listed below. If there are contributions from other sources, itemize in similar categories.
    a. *Salaries.* Itemize positions, giving names of professional personnel, if selected.
    b. *Permanent equipment.* Itemize major pieces of equipment required.
    c. *Expendable equipment and supplies.*
    d. *Travel.*
    e. *Other direct costs.* Itemize other direct costs not included in *a* through *d* above, such as costs of publication and of physical facilities.
    f. *Indirect costs.* Not to exceed 15 percent of the total of funds for direct costs requested of the Foundation, *a* through *e* above.
9. *Approval.* One copy of the proposal should be signed by the principal investigator, by the department head, and by an official authorized to sign for the institution.