NATIONAL RESEARCH FELLOWSHIPS

in the

NATURAL SCIENCES

for

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Administered by the

NATIONAL RESEARCH COUNCIL

WASHINGTON, D. C.

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NATIONAL RESEARCH FELLOWSHIPS BOARD

in the

NATURAL SCIENCES

Address all communications to the SECRETARY OF THE RESEARCH FELLOWSHIPS BOARD IN THE NATURAL SCIENCES, 2101 Constitution Avenue, Washington, D. C.

NATIONAL RESEARCH FELLOWSHIPS

General Statement

The National Research Council has been entrusted by The Rockefeller Foundation with an appropriation to provide for a limited number of Fellowships for the purpose of promoting fundamental research in the natural sciences, primarily in educational and research institutions of the United States. These Fellowships are available in the general fields of Physics, Astronomy, Mathematics, Chemistry, Geology, Paleontology, Physical Geography, Botany, Zoology, Agriculture, Forestry, Anthropology, and Psychology. They are awarded to persons who have demonstrated a high order of ability in research, for the purpose of enabling them to conduct investigations at institutions which make adequate provision for effective prosecution of research.

Purposes of the Fellowships

1. To promote the training in research of young men and women of promise.

2. To increase knowledge of the fundamental sciences upon which scientific progress of all kinds depends.

3. To encourage research in the educational institutions of this country.

Cooperation of Educational Institutions

National Research Fellows are appointed to conduct their investigations at institutions which cooperate in meeting their needs. These needs differ widely from those of students seeking instruction only. Experienced investigators, actively engaged in productive research, are needed to inspire and to guide the work of the Fellows; research laboratories, adequately manned with technicians, and amply supplied with materials, instruments, tools, and other facilities, are indispensable; and funds to provide supplies and to satisfy the continuing requirements of research must be available. Above all, there must exist the stimulating atmosphere found in institutions in which scientific investigation flourishes.

Fellowship Appointments

The appointments of National Research Fellows are made only after careful consideration of the scientific attainments of all candidates.

Eligibility.—National Research Fellowships are awarded to citizens of the United States or Canada, who are as a rule under thirty-five years of age, and who have had training equivalent to that represented by the Doctor's degree.

Stipend.—The usual initial stipend is from $1,600 to $2,000 per annum. Fellows are appointed for one year, but they are eligible for reappointment for a second period, and if reappointed the stipend for the second year may be increased. Stipends are payable monthly in advance. The rate of stipend of an unmarried Fellow shall continue unchanged throughout his term of appointment, irrespective of marriage during this term, unless his formal application contains specific notice of his prospective marriage.

The Fellowships Board is not, however, bound by rigid rules of procedure. Thus, it may offer larger stipends to those of exceptional attainment or wider experience or to those with dependents, and may give appointments to competent investigators who have not taken the Doctor's degree, but who have had an equivalent training in research.

Travel.—First-year grants include an allowance for travel (one way only) of the Fellow by the shortest practicable route from the place of residence at time of appointment to the place of study, at the rate of five cents per mile.

Resignations.—Appointments are subject to the condition that when a Fellowship has been accepted by the applicant, it will not be vacated without the consent of the Research Fellowships Board.

Withdrawals of Fellowships.—The Fellowships Board reserves the right to withdraw a Fellowship and to terminate payment of stipend in case of conduct which, in the opinion of the Board, is unbecoming to a holder of a Fellowship.

Study Abroad.—In exceptional cases the Board is willing to consider applications for study abroad,

although only a limited number of such appointments are made, and then only to supplement fellowship training in the United States, or because of special qualifications and opportunities. Such applicants should clearly present significant reasons for preferring to work in a foreign institution. Additional instructions will be furnished upon request.

Fellowship Regulations

Fellowship Activities.—Research Fellows are expected to devote their entire time to research except that during the academic year they may give a portion of their time, in general not more than one-fifth (outside preparation included), to attendance on advanced courses of study, or, by written permission of the Board, to teaching which would be of educational value to themselves. *It is recommended that Fellows who contemplate an academic career upon the termination of their Fellowships should take such measures as may be at their disposal to acquire proficiency in teaching.* Fellows are not to engage in work for remuneration during the time of their appointment.

Residence.—It is understood that each Fellow, during the tenure of his Fellowship, will remain in residence at the institution to which he is appointed, unless specifically authorized by the Board to move to another institution.

Vacation.—A Fellow, except when studying abroad, is entitled to a vacation aggregating six weeks in each twelve months' period during which he holds a Fellowship, but he is expected to advise the Secretary of the Board *in advance* concerning his vacation plans and mail address.

Reports and Publications.—A Fellow applying for reappointment should submit with the application a brief report, *in triplicate,* indicating the progress of his researches and outlining his future plans.

Before retiring from his Fellowship, each Fellow is expected to submit to the Board for record a brief statement of the principal results of his Fellowship work, and to file subsequently with the Board three (3) reprint copies of such additional

reports and papers involving his Fellowship researches as may be published later. The publications by a Fellow of the results of the investigations carried on during the tenure of his Fellowship should include suitable acknowledgment to the National Research Council.

It is a condition of appointment that all results of investigations by a National Research Fellow shall be made available to the public without restriction or any form of limitation.

Fellowship Applications

Application should be made on forms obtainable from the Secretary of the Fellowships Board and must be submitted in *triplicate.*

The Board requires that each applicant for a Fellowship shall be nominated and responsibly supported by a sponsor of high professional standing.

The applicant should outline fully his proposed plan of research and should indicate two or more American institutions at which, in his opinion, this work can be conducted to good advantage. Ordinarily, a Fellow is not permitted to work at the institution at which the major part of his previous work has been done. The applicant should also indicate the investigator with whom he desires to be associated.

In addition, each applicant is required to arrange to have two or more statements of recommendation submitted directly to the Board from persons qualified to vouch for the applicant's scholastic attainment and promise in research, as indicated by his present experience and by his ideals, ability, originality, judgment, enthusiasm, industry, and personality.

In making Fellowship awards the Board considers that it is administering a public trust. The Board can be greatly aided in this administration by those who recommend applicants in the light of the standards of the Board.

The Annual Meeting of the Board for the awarding of Fellowships will be held about May 1, 1938. Applications for consideration at this meeting must be filed on or before February 1.

Washington, D. C., December 1, 1937.

1937-1938 Fellows

Physics

GAERTTNER, ERWIN RUDOLF (Ph.D., University of Michigan, 1937); *Cloud chamber studies of the gamma and beta rays emitted by elements of low atomic number;* September, 1937-, California Institute of Technology.

GREENSTEIN, JESSE LEONARD (Ph.D., Harvard University, 1937); *The physical state of the interstellar medium;* October, 1937-, Yerkes Observatory, McDonald Observatory.

HERRING, WILLIAM CONYERS (Ph.D., Princeton University, 1937); *Theory of the vibrations and binding forces of crystals;* August, 1937-, Massachusetts Institute of Technology.

KONOPINSKI, EMIL JOHN (Ph.D., University of Michigan, 1936); *Nuclear theory;* September, 1936-, Cornell University.

LANGSDORF, ALEXANDER S., JR. (Ph.D., Massachusetts Institute of Technology, 1937); *Uses of the continuously sensitive cloud chamber;* 1937-, University of California.

NIER, ALFRED OTTO CARL (Ph.D., University of Minnesota, 1936); *The isotopic constitution of the elements;* September, 1936-, Harvard University.

RICHARDSON, JOHN REGINALD (Ph.D., University of California, 1937); *The photo-disintegration of various elements by high energy gamma rays;* September, 1937-, University of Michigan.

SCHIFF, LEONARD ISAAC (Ph.D., Massachusetts Institute of Technology, 1937); *A theoretical investigation of the interactions between fundamental particles;* August, 1937-, University of California.

YEARIAN, HUBERT JOSE (Ph.D., Purdue University, 1934); *Proton diffraction in vapors;* September, 1936-, California Institute of Technology.

Mathematics

BOAS, RALPH PHILIP, JR. (Ph.D., Harvard University, 1937); *Trigonometric integrals; moment problems; Laplace transforms;* September, 1937-, Princeton University.

DRIBIN, DANIEL MACCABAEUS (Ph.D., University of Chicago, 1936); *Modern algebra and the arithmetic of quadratic forms;* September, 1936-, Princeton University, Yale University.

MANNING, DOROTHY (Ph.D., Stanford University, 1937); *Simply transitive groups and primitive linear groups of variety three;* October, 1937-, University of Chicago.

TAYLOR, ANGUS ELLIS (Ph.D., California Institute of Technology, 1936); *Analytic functions in general analysis;* September, 1937-, Princeton University.

TOMPKINS, CHARLES BROWN, II (Ph.D., University of Michigan, 1936); *Some phases of differential geometry in the large;* October, 1936-, Institute for Advanced Study.

ZUCKERMAN, HERBERT SAMUEL (Ph.D., University of California, 1936); *Investigations of modular functions;* October, 1937-, University of Pennsylvania.

Chemistry

BEACH, JOHN Y. (Ph.D., California Institute of Technology, 1937); *Electron diffraction and molecular structure;* September, 1936-, Princeton University.

CRAWFORD, BRYCE LOW, JR. (Ph.D., Stanford University, 1937); *Determination of molecular constants from a study of the unresolved band envelopes of molecular spectra;* October, 1937-, Harvard University.

HUTCHISON, CLYDE ALLEN, JR. (Ph.D., Ohio State University, 1937); *Study of electrolytic enrichment of isotopes;* 1937-, Columbia University.

LORD, RICHARD COLLINS, JR. (Ph.D., Johns Hopkins University, 1936); *The Raman spectra of compounds of deuterium;* September, 1936-, University of Michigan, University of Copenhagen.

MACWOOD, GEORGE EUGENE (Ph.D., Columbia University, 1936); *Heat conductivity and viscosity of helium I and II from 1° to 4.2°K;* July, 1937-, University of Leiden.

STITT, FRED BEALS (Ph.D., California Institute of Technology, 1936); *The vibration-rotation bands of B_2H_6 and of Si_2H_6 and the question of internal rotation;* September, 1937-, Harvard University.

Geology

BELL, JAMES FORBES (Ph.D., University of Munich, 1935); *The investigation by petrofabric methods of a metamorphic area;* September, 1937-, Harvard University.

SCHULTZ, JOHN RUSSELL (Ph.D., California Institute of Technology, 1937); *A study of late pliocene and early pleistocene vertebrate faunas of southwestern United States;* September, 1937-, California Institute of Technology, Harvard University.

Botany

ANDERSON, EARL JENNINGS (Ph.D., University of Maryland, 1937); *The relation of chemical and histological characters of plant roots to their susceptibility to parasitic root rot as influenced by mineral nutrition;* September, 1937-, University of Minnesota.

EMERSON, RALPH (Ph.D., Harvard University, 1937); *Investigation bearing on general biological problems of sexuality, alternation of generation, cytoplasmic heredity, etc., of allomyces;* September, 1937-, University of Cambridge.

SENN, HAROLD ARCHIE (Ph.D., University of Virginia, 1937); *Study of the cyto-taxonomy of the Leguminosae;* September, 1937-, Harvard University.

Zoology

DEMPSEY, EDWARD WHEELER (Ph.D., Brown University, 1937); *Female reproductive behavior;* July, 1937-, Harvard Medical School.

LONGENECKER, HERBERT EUGENE (Ph.D., Pennsylvania State College, 1936); *Studies on the metabolism, transport and storage of fats in animals;* September, 1936-, Physiologischchemischen Institut der Universität Köln, Köln, Germany; Queen's University, Kingston, Ontario.

MAZIA, DANIEL (Ph.D., University of Pennsylvania, 1937); *Colloidally bound ions and their role in physiology of stimulation and anesthesia; the mechanism of ion antagonism; and the mechanism of active permeation of electrolytes;* July, 1937-, Marine Biological Laboratory, Woods Hole, Massachusetts; Princeton University.

SCHMITT, OTTO HERBERT (Ph.D., Washington University, 1937); *The development of a physical theory of the propagation of the nerve impulse and the development of an electro-mechanical model by means of which this theory may be tested experimentally;* October, 1937-, University College, London.

Psychology

COWLES, JOHN TODD (Ph.D., Yale University, 1937); *Factors influencing the delayed reaction of animals with special reference to relations between this function and learning;* September, 1937-, University of California.

SETTLAGE, PAUL HENRY (Ph.D., University of Wisconsin, 1937); *Differential analysis of a wide range of behavior functions by cortical extirpation and drug application with monkey subjects;* October, 1937-, University of Chicago.