

GENERAL SCIENCE

Basic Research Grants

National Science Foundation backs studies in many fields of pure research, from astronomy to zoology, its third annual report reveals.

► **NEW GAINS** on the frontiers of science are being made by the researches supported by the National Science Foundation.

Instruments which will extend the boundaries of the known universe are among the programs which the Foundation encourages. High speed cameras that can follow details of heat flow in boiling liquids have been developed on one of their grants. This study is under Dr. Max Jakob at the Illinois Institute of Technology.

Radio apparatus that has located many ionized layers high in the atmosphere has been built under the Foundation's auspices at the Ionosphere Research Laboratory, Pennsylvania State College. Not only long-distance radio communication, but possibly also changes in the weather are affected by currents and reflections from these atmospheric layers. These studies are headed by Drs. J. J. Gibbons and A. H. Waymack.

A radio telescope which receives vibrations from outer space, built at Harvard College Observatory under the direction of Dr. Bart J. Bok, was in part financed by the Foundation. It will be used to learn more about hydrogen and deuterium in interstellar regions.

Measurements of cosmic rays, in which the Foundation is interested, include studies of the so-called N-rays, believed to be high-energy neutrons, carried on at University of New Mexico by Drs. V. H. Regener and John R. Green, and separation of cosmic particles in the rays, undertaken at Duke University by Drs. Martin M. Block and Harold Lewis.

In the field of biology, the National Science Foundation is helping Dr. Wolf Vishniac of Yale University with the problem of photosynthesis. Dr. Vishniac has been able to duplicate the process usually carried out only by living plant tissue by use of pure chemicals, aided only by the green chemical which has been extracted from plants. This is a step toward the goal of a production line where artificial food and fuel can be created by man by means of energy drawn directly from sunlight.

What part the element phosphorus plays in the luminescence of fireflies, the tantalizing problem of "cold light," is under study at Johns Hopkins University by Dr. W. D. McElroy, with cooperation of the Foundation.

Dr. S. Meryl Rose at the University of Illinois is growing sea animals whose ability to re-grow lost tentacles is impaired when tissues from around its mouth are removed and placed in the water in which it lives.

For the light this will shed on all problems of normal and abnormal growth the

Foundation is helping Dr. Rose identify the growth-stopping factor in these tissues.

Testing whether the cosmic rays reaching the earth have been received at a constant rate for the past 30,000 years is a problem on which the Foundation is working through the researches of Dr. J. Laurence Kulp of the Lamont Geological Observatory of Columbia University. This study gives an independent check on the ages of rocks and deep sea sediments measured by radioactivity of carbon 14. Not only has this research agreed with the radiocarbon dating, it has indicated that, as far as cosmic radiation is concerned, conditions in our corner of the universe have been pretty constant for the past 500,000,000 years.

Allocating funds appropriated by the government for basic research is an important responsibility of the National Science Foundation. Imbalance between basic and applied research is viewed as a portent of danger by officials of the organization.

In the third annual report, they state that "unlimited expansion of effort toward applied research and development, without corresponding support for basic research, will defeat the entire effort by limiting technological progress to minor improvements and refinements of obsolete processes and equipment." (See SNL, Jan. 30, p. 78.)

Encouraging students to take up careers in science is one of the objectives of the Foundation. All fear that too many people will go into fields of science or that too much money is being allocated for research is scouted by the Foundation's report. It states that it is not now possible to spend as much money for research as would be desirable, because of the lack of trained people to employ in research now recognized as needed.

Science News Letter, February 27, 1954

INVENTION

Fishhook Remover Receives Patent

► **SQUEAMISH ANGLERS** who like to catch fish but find getting the fish off the hook a chore should be delighted with F. J. Doerr's fishhook remover. Shaped like a pistol, the barrel has a forked end with a pair of small cutters. The hook is placed between the forks and when the trigger is pulled the cutters cut the hook out of the fish's mouth. The invention, which was granted patent No. 2,669,055, also includes a scale to weigh the fish and a metal tape ruler to measure it.

Science News Letter, February 27, 1954

PHILOSOPHICAL LIBRARY BOOKS

□ **NUCLEAR PHYSICS** by Werner Heisenberg. This new work, by one of the outstanding physicists of our time, begins with a short and fascinating history of the views about atoms in antiquity and also of the development of atomic theory. With 18 halftone illustrations and 32 line illustrations. **\$4.75**

□ **ESSAYS IN SCIENCE** by Albert Einstein. The world of science as the distinguished physicist sees it. Abridged. **\$2.75**

□ **REFLECTIONS OF A PHYSICIST** by P. W. Bridgman. This work includes most of the non-technical writings of Dr. Bridgman and the topics include a discussion of the problems created by the increasingly important social role science is coming to play. **\$5.00**

□ **HARWELL**. This book presents the first connected story to be published of the work and problems of the British Atomic Energy Research Establishment, Harwell, from its inception in 1946 until the end of 1951. **\$3.75**

□ **ENCYCLOPEDIA OF ATOMIC ENERGY** by Frank Gaynor. More than 2,000 entries defining and explaining concepts and terms in nuclear physics and atomic energy makes this volume a vital handbook for all those concerned with atomic science. Illustrations, charts, tables. **\$7.50**

□ **BORDERLANDS OF SCIENCE** by Alfred Still. Deals with phenomena for which the scientist has failed to provide a reasonable explanation. Will fascinate scientist and layman alike. Bibliography. **\$3.75**

□ **THE ATOM STORY** by J. G. Feinberg. The first complete and balanced book on the atom in the language of the layman. Hitherto, books on the subject intended for the ordinary reader have largely stressed one phase of nuclear energy: the bomb. Dr. Feinberg does, of course, discuss the bomb, past and future, in its fullest detail; but places it in its proper perspective in relationship to the complete atomic picture. **\$4.75**

□ **SPACE TRAVEL** by Kenneth W. Gatland & Anthony M. Kunesch. An illustrated survey of its problems and prospects. **\$4.75**

□ **OUR NEIGHBOR WORLDS** by V. A. Firsoff. A survey of the solar system in conformity with the most recent information is used as a basis for a careful investigation of interplanetary travel. Illustrated. **\$6.00**

□ **THE NEW PHYSICS: TALK ON ASPECTS OF SCIENCE** by Sir C. V. Raman. These talks by the world-renowned Indian physicist, a Nobel Prize winner, open new fields of beauty in the things of nature. **\$3.75**

□ **GEOGRAPHY IN THE TWENTIETH CENTURY** by Griffith Taylor. Twenty specialists explore the growth, fields, techniques, aims, and trends of modern geography. Glossary and more than 50 text figures. **\$8.75**

□ **AETHER & ELECTRICITY** by Sir Edmund Whittaker. The first exhaustive history of the classical and modern theories of aether and electricity. Set of two volumes. **\$17.50**

□ **A CONCISE HISTORY OF ASTRONOMY** by Peter Doig, F.R.A.S. A new volume which provides a comprehensive and concise account of the development of Astronomy from earliest times to the present. **\$4.75**

□ **SPADEWORK IN ARCHAEOLOGY** by Sir Leonard Woolley. There is no name among archaeologists better known than that of Sir Leonard Woolley. The present volume is a collection of reminiscences. Illustrated. **\$4.75**

□ **ENCYCLOPEDIA OF ABERRATIONS**. Edited by E. Podolsky, M.D. Preface by Alexandra Adler, M.D. This is the first systematic exposition of human aberrational behavior. **\$10.00**

MAIL THIS COUPON TODAY

PHILOSOPHICAL LIBRARY, Publishers
15 East 40th St., Desk 35, New York 16, N. Y.

Send books checked. To expedite shipment I enclose remittance \$.....

NAME.....

ADDRESS.....