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MONTHLY STATUS AND PROGRESS REPORTS

FOR

MAY 1949

Excerpt

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U.S. ATOMIC ENERGY COMMISSION

Issued June 13, 1949

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- BIOLOGY AND MEDICINE

Research projects


The following research projects have been approved by the Division of Biology and Medicine and the various Operations Offices have been asked to negotiate the contracts:

New York Operations Office:

1. University of Rochester - Dr. Herman Pearse - "Research on Thermal Effects of the Atomic Bomb" - \$87,250
2. Harvard University - Drs. R. F. Sognnaes and J. H. Shaw - "Further Studies on the Metabolism of the Teeth with Special Regard to Radioisotope Studies on the Enamel" - \$12,250
3. Massachusetts General Hospital - Dr. J. H. Means - "Research on Radiation Effects on Thyroid Function" - \$23,000
4. University of Rochester, Dr. W. F. Bale - "Biological Effects of External Radiation (X-rays and Gamma Rays)" - \$17,600
5. Massachusetts Institute of Technology - Dr. A. A. Thomas - "Efficiency of Present Water Treatment Methods in Removing Radioactive Substances from Water" - \$50,000

Chicago Operations Office:

1. University of Chicago - Dr. C. Phillip Miller - "The Bacteriological Aspects of Radiation Sickness" - \$28,000
 2. Henry Ford Hospital - Dr. F. W. Hartman - "Chemical Sterilization of Blood and Plasma with Nitrogen Mustards" - \$12,900
 3. University of Minnesota - Dr. S. W. Hunter - "Investigations on the Use of Zirconium as a Radioopaque Media" - \$6,050
 4. Battelle Memorial Institute - Dr. K. S. Chester - "Use of Radioactive Indicators in the Study of the Mode of Action of Fungicides" - \$23,500
 5. University of Illinois - Drs. B. C. Johnson and H. E. Carter - "The Metabolism of Vitamins and Their Interrelationships with Amino Acids" - \$4,800
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6. University of Minnesota - Dr. E. C. Stakman - "The Effects of Radioactive Substances on Plant Pathogens and Other Microorganisms" - \$39,80

Santa Fe Operations Office:


1. Cedars of Lebanon Hospital - Dr. Paul H. Bekers - "Relationship of Flavonoid Structures to Radiation Protection" - \$17,40
2. University of Colorado - Dr. I. Goodman - "Metabolism of Nucleic Acid Derivatives" - \$17,530
3. Washington University - Dr. L. Lipkin - "Study of Nuclear Acids, Nucleoprotein and Nucleotides and Related Organic Phosphorus Compounds" - \$18,000
4. University of Kansas - Dr. E. Stowell - "Cytochemical, Microchemical and Biophysical Study of Tumors and Effects of Radiation Upon Cells" - \$20,000

Hanford Operations Office:

1. University of Washington School of Medicine - Dr. C. A. Finch - "Isotope Study of Iron Metabolism" - \$13,100

Oak Ridge Operations Office:

1. Duke University - Dr. W. M. Wilbur - "The Isolation and Membrane Permeability of the Liver Cell Nucleus, and Shell Formation in Mollusks and Barnacles as Studied by Radioisotopes" - \$7,924
2. Bowman Gray School of Medicine - Dr. G. T. Harrell - (a) "Distribution and Turnover of Sodium and Potassium in Acute Infections" - (Harrell) - \$12,120; (b) "Hormonal and Pharmacological Actions on the Formation of Tissue Phospholipides" (Dr. C. Artom) - \$12,120; (c) "Toxicity of P-32 as Related to the Functional Capacity of the Liver" - (Drs. Artom, Harrell and Layer) - \$3,135
3. Duke University - Dr. H. Handler - (a) "Training Program" (Handler) - \$17,537; (b) "Metabolic Studies with Radioisotopes" (Handler) - \$12,118; (c) "Studies of Electrolyte and Fluid Balance in Health and Disease (Harris) - \$8,245; (d) "Study of the Absorption of Phosphorus by Pine Seedlings" - (Kramer) - \$1,228; (e) 1. Shell Formation in Mollusks and Barnacles as Studied by Radioisotopes; 2. The Isolation and Membrane Permeability of the Liver Cell Nucleus (Wilbur) - \$1,111

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4. University of North Carolina - Dr. Costello - "Radiation Effects on Salamander Larvae" - \$5,517

Atomic Energy Commission:

1. National Research Council - "Cataract Investigations" - \$30,000

Proposals Extended

Hanford Operations Office:

1. University of Oregon - Dr. P. L. Risley - "Localization of Radioactive Isotopes in Germ Cells and Reproductive Tissues During Quiescence and Activation" - \$15,000; Original grant \$18,842; Total - \$33,842
2. Reed College - Drs. A. F. Scott, Hingate and Livermore - "Postdoctoral Training in Basic Sciences; Application of Radioactive Tracer Technique in the Field of Cellular Metabolism: Biological Synthesis of Peptibond" - \$33,670; Original grant \$33,465; Total - \$67,135

Santa Fe Operations Office:


1. University of Colorado - Dr. Theodore Puck - "Study of Bacteriophage and Radiation Mechanisms" - \$39,000; Original Grant \$40,264; Total - \$79,264
2. University of Colorado - Dr. W. R. Lacher - "The Infrared Absorption Spectra of Nucleic Acids, Amino Acids and Related Compounds" - \$5,120; Original grant \$28,935; Total - \$34,055

Oak Ridge Operations Office:

1. Baylor University - Dr. J. H. East - "Chemistry and Metabolism of Some Sulfur Oxides" - \$15,000; Original grant \$11,200; Total \$26,200
2. Rice Institute - Drs. A. C. Chandler and R. V. Talmage - "The Nutrition of Tapeworms, The Physiological Action of Relaxin in the Mammalian Reproduction" - \$19,700; Original grant \$35,850 - Total - \$55,550


Proposals Not Approved

The following projects were studied by the Division personnel and they were declined as subjects that are now being studied at other institutions or deemed to be outside of the research program as sponsored by the Atomic Energy Commission.

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1. University of Pennsylvania - Dr. H. R. Long - "Use of Trace Elements in the Study of Metabolism of M. Tuberculosis"
 2. York Univ-Bellevue Medical Center - Dr. Anthony A. Albanese - "Study of the Long Term Radiation Effects of Internally Administered Beta Emitters"
 3. Chicago Medical School - Dr. Richard G. Roberts - "Storage of Hemin and Other Metalloporphyrins in Normal and Neoplastic Tissues"
 4. Biological Laboratory, Inc. - Dr. Norman Molomut - "The Effect of Anti-Selenic Tissue Serum in Radiation Damage"
 5. Russell Sage College - Dr. Gertrude Heidenthal - "Radiation Work on the Parasitic Wasp, Habrobracon"
 6. Battelle Memorial Institute - Dr. E. Starr Chester - "Monitoring Radiation with Living Plants and Microorganisms as Detectors"
 7. Amherst College - Dr. H. R. Plough - "Biochemistry and Nutrition of Unicellular Organisms and the Requirement of Varieties of Mutants Induced by Radiation"
 8. Brown University - Dr. F. S. Crane - "Radiation and Tracer Studies in Biology"
 9. Northwestern University - Dr. E. M. Klotz - "Physicochemical Study of the Mode of Action of Antibacterial Agents"
 10. Haskins Laboratories, Inc. - Dr. S. H. Hutner - "Toxicity and Antibiotic Metatron of Composites Forming Complexes with Metals and Effect of Trace Elements on Bacterial Metabolism"
 11. University of Pittsburgh - Dr. H. Gray - "Permeability of Natural Membrane to Gases and Ions"
 12. Alabama Polytechnic Institute - Dr. R. W. Engel - "Nutritional Kwashi and Anemia as Influenced by Choline"
 13. Oberlin College - Dr. G. T. Scott - "Binding Properties of Intra-Cellular Constituents"

Semiannual Report

The staff of the Division have spent a considerable portion of their time in the semiannual report which is primarily focused on the Division of Biology and Medicine. Conferences have been



held in Washington and at the field offices in order that a composite picture may be depicted of the broad programs that are being carried forward in biology and medicine and health physics.

Radiation Problems

A report has been made to the Director of the Division of Biology and Medicine by Harry L. Howman on problems at the Hanford Works and at the sources from which it receives power. Several points of weakness were located, recommendations were made on: material storage, changes in type of building construction, provision of standby facilities, and protection of the village of Richland. The danger resulting from a natural flood or one resulting from breaking Grand Coulee Dam were investigated. A full report will be made in the very near future to the Commission.


Applied Biophysics Branch

On May 13th the Division of Biology and Medicine, through the Biophysics Branch, jointly sponsored a series of orientation lectures for some 300 executives of the casualty insurance companies. The meeting was held in New York City at the Commodore Hotel. The series of four lectures, which covered introduction to atomic energy, isotope distribution program, permissible limits of exposure to ionizing radiation, and the handling of radioisotopes in the laboratories, were designed to give the layman a picture of the problems involved in the handling of radioisotopes. It is felt that through a series of lectures such as this the insurance executives will be better able to evaluate the insurance problems created by atomic energy projects.

Future Tests

The following persons have been named as an ad hoc committee for planning biologic aspects of future tests:

Dr. George V. Leiby, head radiobiologist, Hines Hospital, Hines, Illinois
Dr. Raymond L. Clarke, radiobiologist, University of Chicago, Chicago, Illinois
Dr. Jacob Furth, pathologist, Veterans Administration Hospital, Dallas, Texas
Dr. William L. Armstrong, Biologist, University of Minnesota, St. Paul, Minnesota
Colonel James H. Cooney, Chief, Radiological Branch, AEC
Captain R. H. Cropper, Radiobiologist, Naval Medical Center, Bethesda, Md.
Dr. D. W. Brown, radiologist, University of Chicago



The Committee will have the responsibility of setting up the protocol for observations in the field of biology and medicine.

Use of Radioisotopes and Radiation on Domestic Animals

Reports indicate that the program at the University of Tennessee to study the effects and use of radioisotopes and of radiation on domestic animals is progressing satisfactorily. The major work is with cattle that were exposed to the dust "outfall" of the bomb at Alamogordo. The fields of work cover genetics, pathology and retention, if any, in the tissues of radioactive materials. All of the cattle brought from the Alamogordo area have gained in weight and normal offspring have been produced.

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