

PROGRESS REPORT

DIVISION OF BIOLOGY AND MEDICINE

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NOVEMBER, 1950

Research Projects Approved During November, 1950

The following research projects were approved for negotiation or renewal during November, 1950:

	<u>No. of Projects</u>	<u>Amount</u>
Medicine	11	\$156,305
Biology	8	74,807
Total	19	\$231,112

Biology

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Fordham University - \$5,000

Investigator: Dr. Ellis V. Brown

Title: "Fate of Thiamine and Thiamine Analogs in the Animal Body. Mechanism of Thiamine Inhibition by Thiamine Analogs"

Indiana University - \$4,300

Investigator: Dr. Felix Haurowitz

Title: "The Mechanism of the Combination of Antigen and Antibody"

Boyce Thompson Institute - Contract No. AT(30-1)-788 - \$14,800(Renewal)

Investigator: Dr. George L. McNew

Title: "Use of Tracer Fungicides in Determining the Mechanics of Protecting Plants from Fungus Diseases"

University of Georgia - Contract No. AT(10-1)-222 - \$3,800(Renewal)

Investigator: Dr. Henry Schoenborn

Title: "The Production of Mutant Strains of Euglenoid Flagellates and their use in the Study of Carbon Dioxide Fixation Processes"

State College of Washington - \$4,900

Investigator: Dr. Luther Smith

Title: "Study of Factors Influencing the Biological Effects of X-rays"

University of Wisconsin - Contract No. AT(11-1)-64-IV

Amount - \$26,460 (Renewal). Investigator: Dr. D. E. Green

Title: "Studies on the Cyclophorase System of Animal Tissue."

University of Missouri - Cont. No. AT(11-1)-73 - \$7,020 (Renewal)

Investigator: Dr. S. Brody

Title: Determination of Thyroid Activity in Farm Animals"

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	DETERMINATION (CIRCLE NUMBER(S))
	1. CLASSIFICATION RETAINED
SINGLE REVIEW AUTHORIZED BY:	2. CLASSIFICATION CHANGED TO:
	3. CONTAINS NO DOE CLASSIFIED INFO
REVIEWER (ADD):	4. COORDINATE WITH:
	5. CLASSIFICATION CANCELLED
NAME: M. L. Ko-RMY	6. CLASSIFIED INFO BRACKETED
DATE: 11/7/94	7. OTHER (SPECIFY):

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University of North Carolina - \$8,527
 Investigator: Dr. Maurice Whittinghill
 Title: "The Partial Elimination of Lethal Genes before Reproduction in Drosophila by the use of Environmental Agents"

Medicine

Kettering Laboratory - University of Cincinnati
 Amount: \$28,294 (Renewal). Investigator: Dr. Robert A. Kehoe
 Title: "Research on the Biological Effects of Beryllium and its Compounds"

University of Washington - Cont. No. AT(45-1)-247
 Amount: \$12,000 (Renewal) - Investigator: Dr. Hyp J. Dauben
 Title: "Synthesis of Carbon 14 - Labeled Diethylstilbestrol and a Study of its Metabolism in the Body"

Lankenau Hospital Research Inst., Phila., Pa., - Cont. No. AT(30-1)-777
 Amount \$12,000 (Renewal). Investigators: Dr. Sidney Weinhouse and Dr. Grace Medes
 Title: "Origin and Fate of Amino Acids in Plants and Animals"

Kresge Eye Institute, Detroit, Mich.
 Investigator: Dr. V. Everett Kinsey
 Amount: \$16,427 (Renewal, Contract previously with Harvard Univ.)
 Title: "Effects of Neutrons and Other Radiations on the Ocular Lens"

Mount Sinai Hospital, N.Y.C. - Cont. No. AT(30-1)-746
 Investigator: Dr. Harry Sobotka
 Amount: \$6,530 (Renewal)
 Title: "Use of Isotopes in the Study of the Etiology of Drug Eruptions"

St. Louis University School of Medicine - \$18,800
 Investigator: Dr. Henry Pinkerton
 Title: "Relation of Rickettsial and Viral Infection to Radiation Injury"

Ayer Foundation Ophthalmic Research Lab., New York City - \$5,654
 Investigator: Dr. William H. Buschke
 Title: "Growth Activities, Clotting Mechanisms and Histochemistry of Lens and Cataracts, with Special Emphasis on X-ray Damage."

New York Medical College - Cont. No. AT(30-1)-780 - \$18,350 (Renewal)
 Investigator: Dr. Alfred L. Copley
 Title: "Studies of Vascular Factors in Radiation Hemorrhage and Other Hemorrhagic Diatheses"

Yale University School of Medicine - \$12,700
 Investigators: Drs. John H. Heller and Ernest Pollard
 Title: I - "Studies of Factors Influencing Tissue Sensitivity to Radiation. II - Studies of Oxidative and Reductive Factors in Relation to Radiation Cataract."

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The Hahneman Medical College & Hospital, Phila. Pennsylvania
Investigator: Drs. J.S. Roth and M. J. Boyd - Amount \$13,500
Title: "Study of Nutritional and other Factors Involved in
Radiation Injury and Resistance to Radiation Injury"

University of Oklahoma Research Inst. (Cont. No. AT(40-1)-235
Investigator: Dr. S. H. Wender - Amount \$12,000 (Renewal)
Title: "Studies of Isolation and Identification of Flavonoid
Pigments of Use in the Control of Radiation Injury"

Advisory Committee for ⁴⁵Biology and Medicine

The Advisory Committee for ⁴⁵Biology and Medicine held its 24th meeting at the AEC in Washington on November 10 and 11, 1950. The discussions for the most part were centered on the scope and breadth of research programs for the Division of Biology and Medicine.

Representatives of the medical branches of the Armed Services included General Wm. H. Powell, Adm. T. C. Greaves and General James P. Cooney who participated in discussions regarding their current programs for the protection of military personnel against acute injury from ionizing radiation.

Biology Branch

Dr. Alexander Hollaender, Director of the Biology Division of the Oak Ridge National Laboratory, and Dr. Edward McGrady, Office of Research and Medicine, Oak Ridge, reviewed with members of the Washington staff the program for the yearly Information Meetings of the Biology Division of ORNL to be held at Oak Ridge April 12 to 14, 1951. The general theme of the conference will deal with the Effect of Radiation on Cellular Physiology.

Dr. N. E. Tolbert attended a conference at Oak Ridge to review the progress in RW project at the University of Tennessee Farm and to discuss certain technical aspects in the irradiation of the burros. The Division of Biology and Medicine has agreed to advise on the technical aspects of this program. Also present at the conference were representatives from the Toxicity Laboratory of Chicago, University of Tennessee, and Oak Ridge Operations Office.

Dr. P. B. Pearson visited ANL and reviewed the biology program there with Dr. Austin Bruce and members of his staff. Special consideration was given to the program of biological synthesis of labeled compounds under the direction of Dr. N. Scully. The Argonne Laboratory will supply the Washington office with a list of compounds which will be available from this program for experimental use within the next year.

During the week of meetings of the Association of Land Grant Colleges and Universities in Washington, D. C. members of the administrative staff of several universities called at the office of the Biology Branch to discuss current and pending research projects which are supported by the AEC. Among the institutions represented were the Universities of California, Nebraska, Tennessee, Wisconsin, Michigan State College and Washington State College and Ohio State.

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Medical Branch

Atomic Bomb Casualty Commission

The report: "Survey of the Business Management Practices of the Atomic Bomb Casualty Commission, Japan" by Mr. John V. Lannan, Internal Auditing Branch, Finance Division, was studied by the Division and recommendations for corrective action were passed on to Dr. Milton Winternits, Chairman, Division of Medical Sciences, National Research Council in a letter from Dr. Warren on November 27, 1950.

The administration of the ABCC contract AT-49-1-GEN-72 with the National Academy of Sciences was assigned to the NYOO to be effective December 1, 1950.

Dr. Ernest W. Goodpasture, Vice Chairman of the Advisory Committee for Biology and Medicine, is leaving for Japan about December 15, 1950 to re-examine the scope of the research activities of the ABCC in Hiroshima and Nagasaki.

An informal meeting held on November 8, to review the scope and progress of the ABCC program in human genetics was organized by Drs. George A. Hardie and Dr. Max H. Zelle. Drs. Curt Stern, James Neel, Carl Harris, Philip Owens, Shields Warren, Charles L. Dunham and Paul B. Pearson were also present.

Beryllium Advisory Committee

Dr. Robert A. Kehoe, Director, Kettering Laboratory of Applied Physiology, University of Cincinnati, has agreed to serve on the Division's Beryllium Advisory Committee. Dr. Harriet Hardy, Chairman, is planning to have the next meeting of the committee on February 8, 1951 to review the recommendations for control of beryllium hazards.

Visits

Dr. Philip Drinker, Professor of Industrial Hygiene, School of Public Health, Harvard University, visited the Los Alamos Scientific Laboratory on November 13 and 14 as a consultant for this Division, and found the industrial hygiene conditions greatly improved over the conditions found at the time of the Health and Safety Committee survey in 1947. Dr. Drinker stated that * * * * * "Many of the things we saw in '47 and criticized were gone or completely changed for the better. The most important was the lack in '47 of industrial health and industrial health supervision. Today the picture has completely changed in these matters."

Biophysics Branch

A member of the Biophysics Branch visited Mount Laboratory to review their radioactive waste disposal operations, and to obtain an overall view of health physics activities at this site. Substantial amounts of activity are received as liquid wastes at the water treatment plant where routine processing reduces the discharge about 1000 times. Concentration of radioactive waste in the Miami river, after mixing has occurred, is only about a

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tenth of the permissible concentration as evaluated by the National Bureau of Standards Subcommittee on Permissible Internal Dose. Shifting of employees between areas of high and low potential exposure, to permit accrued body burdens of radioactive materials to be eliminated, insures that no employees have long-term average body burdens above the maximum permissible limit.

Staff work is proceeding on the problem of deriving emergency tolerance concentrations of fission products which might be permitted in drinking water and food for limited periods, in case of atomic disaster. Material is also being assembled for an official statement on permissible levels of exposure to external radiation and to internal radioactive emitters, for use in AEC installations. It is expected that these statements will be issued during December.

A comprehensive waste-disposal policy is being formulated to govern the amounts of radioactivity allowable in discharged AEC liquid wastes. Such a realistic general policy is conceived as being useful in assaying the satisfactory or unsatisfactory nature of current waste disposal policy, and in deciding whether proposed waste disposal facilities at new or old sites are likely to be adequate in the sense of creating no appreciable radioactivity hazard. A large amount of staff work remains to be done.

The literature was reviewed and a report was prepared on the lethal effects of X-rays and gamma rays on a variety of mammals, as an aid to estimating the lethal effects of radiation on humans. Available clinical data on humans, as well as such information as could be gleaned from data on the Japanese at Hiroshima and Nagasaki, were also included. The report is for consideration by an ad hoc committee which will estimate possible military effects of radiation. It will also be of value in the studies of the Reactor Safeguard Committee.

Radiation Instruments Branch

The Radiation Instruments Branch was directed by the General Manager's Office to investigate various radiation detection instruments for the purpose of detecting atomic weapons which might be smuggled into the U.S. aboard a ship. It is felt that the most promising instrument is one developed at Oak Ridge National Laboratory which is of the order of 2,000 times more sensitive than a Geiger counter. Experiments are being run with this instrument and it may later be tested under actual conditions at Los Alamos.

General Specifications for Civil Defense Radiological Monitoring Instruments were prepared by a five-man subcommittee of the Federal Civil Defense Administration's Interdepartmental Radiological Safety Advisory Committee. The chief of this branch was a member of this subcommittee. These specifications were sent to approximately 150 interested companies for their use in the development of civil defense instruments. Prototype models of instruments developed will be tested by the Bureau of Standards to determine their conformance to these specifications. A listing of instruments suitable for training state civil defense units was also prepared and disseminated to the state and local civil defense offices.

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A consolidation of requirements for training instruments will be undertaken by the National Institute of Health. However, state funds will be used for procurement.

A study is being made to determine the feasibility of declassifying Ra-Det and making it available for public sale. Ra-Det is a monthly publication containing information on instrumentation which is distributed only within governmental organizations.

Civil Defense Liaison Branch

Information Paper

During the month an information paper, AEC 171/14, entitled "Civil Defense Activities of the AEC - Recent Developments" was prepared and submitted for circulation to the Commission. This paper summarizes activities occurring subsequent to previous papers in this series.

Loan of Radiation Detection Instruments and Radiation Sources

Requests for loan of instruments and/or sources were received from the civil defense organizations of the State of North Dakota and the City of Chicago. These requests were honored after approval by the NSRB of the training courses in which they were to be used, in accordance with the procedure established by the CDL Branch with the NSRB.

Disaster Plan

A disaster plan for the Division of Biology and Medicine, supplemental to the overall Washington Headquarters plan, has been prepared in draft form and is undergoing revision.

Review of NSRB Documents

The draft NSRB "Civil Defense Health Services Manual" was reviewed intensively by members of the Division of Biology and Medicine and also by representatives of the Division of Military Application and Technical Information and the Office of Classification.

Review of Shelter Plans

At the request of the NSRB and the Reconstruction Finance Corporation it has been agreed that plans and specifications for the construction under the Boston Common of a garage, that would also serve as an underground A-bomb proof shelter would be reviewed by AEC for efficacy of protection by the proposed structure.

NSRB Advisory Committee on Radiological Monitoring

AEC members of this Committee and of a sub-committee appointed to

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prepare specifications for an approved civil defense type radio detection instrument attended several meetings during the month. Recommendations of the sub-committee were approved at a full committee meeting and it was announced that the approved specifications could be released probably early in December.

Committee to Study Defense Against Unconventional Forms of Attack

On November 6, 1950 the AEC was asked by Mr. Jess Larson, General Services Administrator, to appoint a representative to a committee to study problems of defense against unconventional forms of attack and to make recommendations for protection of governmental buildings, records and personnel against such attack. Dr. Walter D. Claus, Chief, Biophysics Branch, Division of Biology and Medicine, has been nominated to serve as AEC representative on this Committee.

Resignation

Mr. John A. Derry has resigned his position as Executive Officer of the Division of Biology and Medicine to join the staff of the Research Division. Mr. Howard C. Brown, Jr., from the Management Branch of the Division of Organization and Personnel has accepted the position of Executive Officer for the Division.

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