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PROGRESS REPORT - DIVISION OF BIOLOGY AND MEDICINE - MONTH OF JULY, 1950

RESEARCH PROJECTS APPROVED OR RENEWED DURING JULY 1950:

The following numbers of research projects were approved for negotiation or renewal during July for direct AEC administration:

	No. of Projects	Amount
Biology	1	$ 5,400
Medicine	4	25,840
Biophysics	1	8,000
Total	6	$ 39,240

A list of the projects covered in the above summation is available in the Division of Biology and Medicine.

APPOINTMENT OF DR. M. EDWARD TOLBERT

Dr. Tolbert has joined the staff of the Division of Biology and Medicine and will be primarily concerned with the plant sciences and biochemistry program in the Biology Branch. Dr. Tolbert received his PhD from the Biochemistry Department at the University of Wisconsin. Before coming to Washington, Dr. Tolbert was with the Berkeley Radiation Laboratory.

INTERDEPARTMENTAL COMMITTEE ON RADIOLOGICAL MONITORING

The Acting General Manager designated John A. Derry, Ward Miller, L. Joe Deal and Robert L. Butenhoff from this Division to serve on the NSRB Interdepartmental Committee on Radiological Monitoring.

MEDICAL BRANCH

Dr. George A. Hardie of the Medical Branch and Mr. John V. Lennan of the Finance Division were in Japan during June and early July visiting the Atomic Bomb Casualty Commission. They spent about 2-1/2 weeks in Hiroshima at the main project and a few days at Nagasaki.

Genetics work consisting of examination of all new-born infants has been in progress in both cities for two years.

A program of clinical examination of survivors at Hiroshima and a suitable number of controls from those who have moved to Hiroshima since the bombing is well under way.

Ophthalmological examinations by Dr. Kimura of the survivors at Hiroshima who were within 1000 meters of the hypo center revealed 75 cases of radiation cataracts of all stages. A similar program is in progress at Nagasaki and 25 cases of radiation cataracts had been found so far by Dr. Kimura.

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

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BIOLOGY BRANCH

At the Southern Research Institute 18 microcuries of $NaHC^{14}O_3$ were injected into mice. The approximate amount that was retained in the skeleton was0.25 percent at the end of 24 hours, 0.03 percent at the end of one month, 0.02 at the end of 6 months, and 0.01 at the end of one year. The result is a skeletal radiation of about 0.07 roentgen equivalent physical per day for the period 0 - 24 hours and 0.008 between 2 and 4 weeks. Thus a single injection of 18 microcuries of $NaHC^{14}O_3$ has resulted in a radiation of certain bone shaft cells which is initially greater than the maximum allowable radiation of tissue for man (0.04 rep/day). It should be recognized that these mice had received by injection a dose of C^{14} which is larger than a man should receive in any experimental work with radioactive carbon.

Workers at the Radiation Laboratory at Berkeley, California have used carbon fourteen to study biological half lives of the components of the blood in human leukemic patients. According to the radiocarbon glycine studies the life span of the red cells of the first patient studied was approximately 100 days. The turnover time of the plasma albumin radiocarbon was approximately 14 days and of the plasma globulin radiocarbon 10 days.

Scientists working on the mechanism of CO_2 fixation have shown that the first product of photosynthesis is phosphoglyceric acid. The first fixed radioactive CO_2 is all found in the carboxy group of this compound. It follows then that a two carbon precursor must precede the formation of the first product of photosynthesis and considerable effort is being exerted to find this compound and to elucidate the mechanism of its formation. The close relationship of glycolic acid to this compound has been suggested by a number of experimental results. The distribution of radiocarbon in glycolic acid invariably has been found to be symmetrical and to correspond to the equal alpha and beta labeling in phosphoglyceric acid obtained from short photosynthetic experiments.

CIVIL DEFENSE LIAISON BRANCH

Civil Defense Instructor Training Program

The fifth and last course, for radiological monitor instructor trainees, jointly sponsored by the NSRB and the AEC, commenced July 10 at Illinois Institute of Technology, Chicago, Illinois. Seventeen students were enrolled, representing the states of Illinois, Wisconsin, Indiana, Pennsylvania, Virginia, North Carolina, Arkansas, Texas, Kansas and Missouri.

Survey on Hazards Related to Atomic Energy

AEC Staff Paper 157/7, dated July 21, 1950, brought up to date the recent developments on this project, and provided for appropriate notification of the Joint Committee on Atomic Energy, the NLC, prior

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to actual commencement of the interviewing, scheduled to start approximately August 1.

The survey, to be carried out by the Survey Research Center, University of Michigan consists of:

A. An intensive study of the knowledge and attitudes toward possible radiation hazards arising out of Commission operations of an adequate cross section of adults residing within a radius of approximately 25 miles around:

(1) Oak Ridge, Tennessee
(2) Argonne National Laboratory, Illinois
(3) Brookhaven National Laboratory, New York
(4) Los Alamos, New Mexico
(5) Hanford, Washington
(6) Ames, Iowa
(7) Berkeley, California

B. An intensive study of a group of communities, with similar population and other characteristics (control group), but not significantly affected by atomic energy operations, for purposes of securing data on possible similarities and differences in knowledge and attitudes toward possible radiation hazards.

The contract covering this work calls for completion of the project by January 1, 1951.

Information Furnished NSRB

During the month the pamphlet "Medical Aspects of Atomic Weapons," jointly prepared by AEC and the Department of Defense for NSRB was reviewed and revised in several particulars prior to reprinting by the GPO.

NSRB Interagency Working Group - Interim Civil Defense Plans for Key Areas

Professor H. L. Bowman attended the Seattle Civilian Defense Exercise July 10-21 inclusive as a representative of the Commission at the invitation of Mr. Eric Biddle, Chairman of the Interagency Working Group.

RADIATION INSTRUMENTS BRANCH

Kits containing equipment for the Washington AEC Emergency Radiological Monitoring Teams have been distributed to each of the four groups. Three of the groups have already held meetings to discuss operating procedures and general problems and to become familiar with the instruments. Development on civilian defense radiological monitoring instruments at each of the five AEC installations is continuing, but the status has not changed substantially during the last month. Arrangements have been made with...

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the National Bureau of Standards to conduct spectral sensitivity tests and with the Signal Corps at Fort Monmouth to conduct environmental and ruggedness tests on civilian defense type instruments. The first instrument, designed by the New York Operations Office, is scheduled for testing early in August.

The Radiation Instruments Catalog copy was shipped to Oak Ridge for printing and distribution. The Catalog will contain photographs and descriptive material on 493 items. Products from 85 companies are listed. The Bureau of Standards is preparing facilities to be made available to the Branch for calibrating, testing, and storing radiation instruments.

On July 17 alterations of a temporary WSB building were begun to provide facilities for calibration, testing and inspection of AEC radiation detection instruments by the RIB. Occupancy is anticipated on or about August 15. Approximately 153 square feet of testing space, 135 square feet of effective bin-storage space, and 225 square feet of bulk storage space will be available.

The Branch has received and forwarded to the areas the agenda for the forthcoming meeting, sponsored jointly by the AEC-DOD, on the "Chemistry and Physics of Radiation Dosimetry" to be held at the Army Chemical Center at Edgewood, Maryland.

The testing room will be equipped with a complete set of tools for making repairs on electronic equipment and for construction of small electronic devices. Testing facilities will include conventional apparatus required for calibration and repair of radiation detection equipment and related electronics repair.

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