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U.S. ATOMIC ENERGY COMMISSION

Issued May 25, 1950

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Sandia. A directive was written for a control laboratory for the Assembly Area at Sandia to be constructed at an estimated cost of \$132,000.

Administration

Los Alamos. Continued progress is being made in the disposal of surplus property and salvage by transfer and by bid sale.

The Emergency and Disaster Plan for Los Alamos has been revised by the committee for quarterly review.

A three-day security conference was held with representatives from each SFO Field Security Office and from the Washington Office attending.

The Santa Fe Operations Office recently executed a contract with Carco to operate a C-54 aircraft which has been obtained by AEC on a loan contract from the Air Force.

IV - BIOLOGY AND MEDICINE

Research Projects Approved or Renewed During April 1950

The following number of research projects were approved or renewed during April for direct AEC administration:

	<u>Number of Projects</u>	<u>Amount</u>
Biology	10	\$ 164,224
Medicine	34	910,696
Biophysics	2	59,100
Total	46	\$1,134,020

In addition, three projects, totaling \$134,000, were renewed for joint support by the Commission and the Office of Naval Research. Five proposals were declined.

A list of proposals approved in April is available from the Division of Biology and Medicine, and a similar list of proposals approved during the first 4 months of 1950 is being included as Appendix D of the Progress Report to the Joint Committee.

Semiannual Report to Congress

The Commission's Eighth Semiannual Report to Congress is being written around the theme of control of radiation hazards in the atomic energy program. This subject is largely the concern of the Division of Biology and Medicine, and much time and effort during April was devoted to gathering and preparing descriptions of how radiation affects living things, and how it is controlled through the devices and methods of health physics.

Biology Branch

Labeled drugs. At the University of Chicago, Dr. E.M.K. Gilling and his associates have prepared labeled digitoxin, nicotine, morphine, and atropine with varying degrees of activity. Experiments with animals have shown that existing knowledge on the metabolism of digitoxin is incomplete, and in some instances incorrect. Thus, it has been assumed for years that digitoxin is slowly metabolized and excreted. By the use of labeled digitoxin it has been shown that this drug is rapidly metabolized and the products of metabolism rapidly excreted. It is anticipated that by the use of labeled drugs information will be obtained on the mechanism of their action.

Carbon 14 and tritium. With the increased use of tritium and carbon 14 and the hazards in handling production quantities of tritium, steps have been taken to obtain more complete information on the metabolism of these materials and their effects on plants and animals. Work is being initiated as rapidly as possible at Argonne and Los Alamos.

Medical Branch

Oak Ridge Cancer Unit. The construction of the Oak Ridge Cancer Unit is now complete. The unit is expected to be equipped and ready to receive patients by the middle of May. Cancer research activities will include the following studies:

1. Exploration of the possibility of using radiogallium in the treatment of first experimental, later human cancer.
2. The exploration of the unique properties of radio-ruthenium in the treatment of surface tumors.
3. The exploration of the possibility of using radio-manganese in the treatment of thyroid tumors.
4. The study of the mechanism of action of antimony compounds in cancer by radio-tracer techniques.
5. Development of telecobalt therapy using a thousand curie source in conjunction with the Post-Graduate School of Medicine, University of Texas, and the M. D. Anderson Hospital for cancer research.
6. Arrangements have been completed for the acceptance of senior residents of southern medical schools for periods of training of three months in duration.

Dr. L. W. Tuttle, representing the Medical Branch, and Dr. Paul B. Pearson, representing the Biology Branch, attended a joint conference with Oak Ridge National Laboratory on current problems in the biochemistry of nucleic acids at Oak Ridge on April 13 and 14. The conference was very successful in bringing together the outstanding authorities in the nucleic acid field, including those investigators whose work was supported directly or indirectly by the AEC, for a thorough exchange of ideas.

The Chief, Medical Branch, participated in a panel discussion of atomic energy in war and peace at the annual meeting held in Boston, Massachusetts, of the American College of Physicians. This Panel was moderated by Dr. John Z. Bowers, Special Assistant to the Director of Biology and Medicine. Other participants were: Dr. Austin Brues, Director, Biology Division at Argonne National Laboratory; Dr. G. Failla, Director, Radiological Research Laboratory, Columbia University; and Dr. Stafford Warren, Dean, School of Medicine, UCLA.

Encyclopedia Brittanica, Inc. Negotiations are in process to have the Encyclopedia Brittanica, Inc., produce a film entitled "Radiation as a Cause of Cancer" which will be used for training at the postdoctoral level in the biological effects of radiation.

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Biophysics Branch

Fellowships (radiological physics). - The program for graduate fellowships in radiological physics was given to Oak Ridge Institute for Nuclear Studies for administration. An ad hoc committee consisting of Dr. Walter D. Claus (AEC), Dr. Elda E. Anderson (ORINS), Dr. Russell Poor (ORINS), Dr. Newton Underwood (Vanderbilt), Dr. Henry Blair (Rochester), and Dr. J. Newell Stannard (Rochester) selected 40 persons for fellowship awards and their alternates. The program will train 20 persons at Rochester University and Brookhaven National Laboratory and 20 at Vanderbilt University and Oak Ridge National Laboratory.

Members of the Biophysics Branch attended a meeting held in Oak Ridge to discuss final aspects of setting up the joint AEC-Public Health Service project on water purification. This project will constitute an advanced phase of work already under way for studying the removal of radioactive contaminants from water for public consumption.

A draft paper has been prepared reviewing the physical and psychological dangers of a possible break in White Oak Dam in case of a heavy flash flood in that area and was sent to the Manager, Oak Ridge Operations Office, for concurrence. The draft includes proposed recommendations suggesting that the White Oak Dam at Oak Ridge be reconstructed and strengthened to the extent that the possibility of dam failure may be reasonably eliminated for any foreseeable flood conditions.

Arrangements for beginning a radiation background survey of the Arco area are being made by Mr. L. J. Deal, who is visiting the site. The Idaho State College at Pocatello and the U. S. Fish and Wildlife Service will probably assist in obtaining biological samples for analysis. Plans are being pushed for sampling and analysis of air, soil, and water.

Civil Defense Liaison Branch

Radiological monitoring. Three of the five courses in radiological monitoring have been completed, making a total of 48 students successfully completing the instruction. At Brookhaven National Laboratory 19 teacher-trainees completed the course representing the States of Maine, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Delaware, Maryland, the District of Columbia, and the Territory of Puerto Rico. Twelve students successfully completed the course at UCLA, coming from California, Hawaii, and Alaska. At Oak Ridge 21 students completed the course, representing Alabama, Florida, Georgia, Iowa, Louisiana, Michigan, Mississippi, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, West Virginia, and Wyoming. Present indications are that a total of 37 states, plus the District of Columbia, Alaska, Hawaii, and Puerto Rico, will have participated in these training programs.

Medical aspects of atomic warfare. The one-week instructor-training courses in this subject have now been completed at the following seven selected centers: University of Rochester, AEC Project; Johns

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Hopkins University School of Medicine, Argonne National Laboratory; Western Reserve University School of Medicine; University of Utah School of Medicine; UCLA AEC Project; University of Alabama Medical School. A total of approximately 150 (including observers) physicians participated in this program representing 36 states, the District of Columbia, Alaska, Hawaii, and Puerto Rico.

Radiation Instruments Branch

Of the 41 industrial concerns solicited during the period from January 19 to April 30, relative to civilian defense instruments, 24 responses have been received. A procedure has been drafted for evaluating the proposals and criteria for contract selection. The selection should be completed during May. Tentative completion schedules and budgets have been proposed for the radiological monitor developments which are being undertaken by AEC and prime contractor organizations. A proposal received from the Naval Radiological Defense Laboratory for similar development was accepted on April 25, and a letter agreement will be entered into with the Bureau of Ships.

Arrangements are being made to provide AEC instrumentation personnel with supplementary plant facilities for designing and building the special electron tubes needed to meet specific and exacting AEC requirements. A steering committee, consisting of representation from the AEC laboratories, has recommended the facilities of the Research Laboratories of the Radio Corporation of America as being best suited to our needs. The scope of a proposed contract, presently under negotiation with RCA, is defined as follows:

Research, development and consultation as mutually agreed upon on instrumentation for nuclear research, with particular reference to the development of new and improved electronic devices, employing photosensitive and secondary emissive surfaces, electron beams, storage elements and associated apparatus. Development may include the fabrication of a suitable number of models representing the results of said research and development. The performance of work by the sub-contractor may be further defined from time to time by written instruction of the authorized representative of the contractor, duly acknowledged by the subcontractor.

The Radiation Instruments Branch prepared a draft of the chapter on radiation detection for inclusion in the Eighth Semiannual Report to the Congress.

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