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QUARTERLY PROGRESS REPORT

to the JOINT COMMITTEE on ATOMIC ENERGY

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UNITED STATES ATOMIC ENERGY COMMISSION

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Part VI

Biology and Medicine

BROOKHAVEN MEDICAL RESEARCH CENTER (UNCLASSIFIED)

The Brookhaven National Laboratory Medical Research Reactor (MRR) went critical at 9:44 p.m., March 15, 1959. Critical loading is 2,249.3 grams of uranium 235, approximately 100 grams less than was calculated. The MRR will be run for several weeks to conduct low power measurements. Patient treatment is expected to begin later this year.

The program at Brookhaven utilizing the medical reactor will involve (1) exploration of therapeutic effectiveness of neutron capture therapy in certain types of brain tumors, (2) exploration of diagnostic usefulness and therapeutic effectiveness of radioisotopes of very short half-life, which will be produced in the reactor, and (3) activation analysis applied specifically to biological specimens.

With regard to short-lived radioisotopes, one of these, magnesium 56, has been applied at Brookhaven to liver metastases in malignant neoplasia.

FALLOUT HEARINGS

Preparation of material was under way for the new hearings on fallout to be held before the Joint Committee on Atomic Energy, scheduled to begin on May 5, 1959. Bibliographic material was being prepared by the Technical Information Service Extension, Oak Ridge.

PROJECT CHARIOT

A Planning Committee on Environmental Sciences has been established to recommend studies aimed at accomplishing a biological survey of the Cape Thompson area of Alaska. In these studies, information will be compiled on marine and land population densities, migratory habits, food chains, oceanography, and other pertinent subjects, as part of an investigation to enable the Commission to make the necessary evaluation as to the feasibility of Project CHARIOT, a proposed experimental nuclear detonation near Cape Thompson which would provide an excavation suitable for a harbor.

Dr. John N. Wolfe, Chief of the Environmental Sciences Branch of the Division of Biology and Medicine, is Chairman of the Planning Committee. Other members include representatives of the Laboratory of Radiation Biology at the University of Washington, the Atomic Energy Project of the University of California at Los Angeles, and other appropriate organizations. Committee members will confer with such organizations as the Alaska Fish and Game Depart-

ment, the Alaska Public Health Department, and the University of Alaska, and with such Federal agencies as the U. S. Fish and Wildlife Service, the U. S. Public Health Service, and the Bureau of Indian Affairs.

EXPANSION OF RESEARCH IN OCEANOGRAPHY AND MARINE BIOLOGY

In February the Committee on Oceanography of the National Academy of Sciences-National Research Council released to the public the results of its study of national problems in oceanography. In its report the committee recommends that to present budgets for oceanographic research there be added budget provision of $651,000,000 over the next 10 years for various types of additional oceanographic activity. Of this amount, $32,000,000 or 5 percent is for additional research on radioactivity in the oceans; including such research already in progress, the recommended annual cost would be $4,000,000 to $6,000,000. The study assumes that the AEC would finance the major part of this research. In fiscal year 1959, AEC support of research in oceanography and marine biology under the biology and medicine and reactor development programs amounts to about $1,200,000, and an increase to $1,700,000 is planned for 1960.

The AEC is cooperating with other Government agencies concerned with oceanography through a special committee at the bureau level which is to make specific recommendations for carrying out the proposals of the Committee on Oceanography and is to present a coordinated Federal oceanographic program, including a budget. This committee's recommendations are to be submitted to the Federal Council for Science and Technology. Some of the other agencies on this committee are: various offices of the Department of the Navy; the National Science Foundation; the Fish and Wildlife Service, Department of the Interior; and the Maritime Administration and the Coast and Geodetic Survey, Department of Commerce.

An expansion of AEC oceanographic research would most likely include studies of radioactivity as related to: (1) control and monitoring, (2) estuarine and coastal research, (3) research in open ocean, (4) sedimentation, (5) effects on the biosphere, (6) genetic effects on marine organisms, and (7) biological field experiments.

TRAINING AND EDUCATION

Laboratory equipment grants of $316,717 were awarded to 31 colleges and universities during the first 3 months of 1959. These grants are intended to provide teaching aids, demonstration apparatus, and student equipment to assist nonprofit educational institutions in offering courses in nuclear technology as related to the life sciences. This was the sixth series of awards since establishment of the program in October 1957. Since that time, 152 grants amounting to $1,810,707 have been awarded to 110 institutions.

Contracts have been negotiated for support of 19 institutes in radiation biology for high school and college science teachers in the summer of 1959. This program now includes 17 institutes for high school teachers and 2 institutes for college teachers. The institutes for college teachers are intended for teachers from small colleges, defined arbitrarily as college with a student enrollment of 5,000 or less.

Harvard University completed the preparation of the manual of laboratory experiments and demonstrations in applications of radioisotopes in biology. The manual is to be printed by the Government Printing Office and will be available to the participants of next summer's institutes described in the preceding paragraph. Other interested individuals will be able to purchase the manual from the Superintendent of Documents. (End of UNCLASSIFIED section.)

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