

MINUTES

ADVISORY COMMITTEE FOR BIOLOGY AND MEDICINE

TWENTY SECOND MEETING

Held at

ARGONNE NATIONAL LABORATORY

Chicago, Illinois

May 12-13, 1950

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MINUTES

Advisory Committee for Biology and Medicine

May 12-13, 1950

The twenty-second meeting of the Advisory Committee for Biology and Medicine was held on Friday and Saturday, May 12 and 13, 1950 at the Argonne National Laboratory, Chicago, Illinois.

Attendance

ATTENDANCE

Members of Committee

Dr. Alan Gregg, Chairman
Dr. E. W. Goodpasture, Vice-Chairman
Dr. George W. Beadle
Dr. Detlev W. Bronk
Dr. A. Baird Hastings
Dr. J. T. Wearn

New members in attendance. Appt. effective July 1, 1950

Dr. Edward A. Doisy
Dr. Curt Stern

Staff of Division of Biology & Medicine and AEC

Dr. Shields Warren
Mr. John A. Derry
Dr. Walter D. Claus
Dr. Charles L. Dunham
Dr. Paul B. Pearson
Mr. O. M. Schriver
Mr. Beverly Thompson
Mr. R. A. Tumbleson
Mrs. F. R. Montgomery

Staff representing Chicago Operations Office, University of Chicago, and Argonne National Laboratory

Dr. A. M. Brues
Dr. L. T. Coggeshall
Mr. W. B. Harrell
Dr. R. B. Hasterlik
Dr. H. Hilberry
Dr. L. D. Marinelli
Dr. F. C. McLean
Dr. E. L. Powers, Jr.
Mr. J. E. Rose
Dr. S. M. Skinner
Dr. W. H. Zinn

FRIDAY, May 12, 1950 - 9:00 a.m.

Mr. Austin Brues, Director of the Biology Division of Argonne National Laboratory provided an extensive tour of the laboratories. The work in process in the Biology Division, Radiological Physics and Health Service Division was reviewed. A visit was made to the Billings Hospital and the Toxicity Laboratories.

The following individual programs were presented:

Biology Division

Dr. W. Flynn - Tour of animal quarters, with description of methods of handling experimental animals.

Dr. S. Phyllis Stearner - Effects of X irradiation on newborn rats - production of opacities of the lens of the eye.

Dr. Miriam Finkel - Means of conducting long-term experiments - toxicity of polonium.

Mr. S. A. Tyler - Outline of work in biometrics on planning and evaluation of experiments.

Mr. V. T. Clemens - Measurement and absolute determination of dosages from various radioactive isotopes. Measurements of X-ray dosage with air mesh chamber and photographic plates. Methods of determination of radium constant in the human body.

Mr. J. Sayre - Demonstration of electron microscope.

Mr. H. S. Ducoff - Continuous flow fractionation of ion-exchange chromatograms. Growth of C paramecium in mass cultures and dialysis bags. Microscopic appearance of Chilomonas as affected by treatment.

Dr. D. Morris - Study of thyroid physiology with radioiodine.

Dr. H. M. Patt - Physiologic aspects of radiation damage. Factors in radiosensitivity - induced radioresistance.

Dr. B. V. Hall - Protection of cells in vitro from irradiation damage by means of sulphydryl compounds.

Mr. G. Svihla - Equipment for cine-photomicrography.

Dr. F. Wassermann - Study of connective tissue ground substance and fibers by electron microscopy.

Dr. D. L. Buchanan - Dynamics of CO₂ metabolism in relation to its radiotoxicity.

Dr. Janet Passonneau - Investigation of kinetics of molting fluid in cecropia moth using C-14. Particle effects of B irradiation on rats. Abnormal tissue growth. Soft x-ray effects on mice in which the dosage was varied inversely with the surface exposed.

Dr. T. N. Tabmisian - Effects of X irradiation on the metabolic processes of the resting cell. Increase of an oxidase system caused by X-irradiation. Cytological changes in irradiated cells.

Dr. S. A. Gordon - Ionizing radiation and growth hormone relationship in higher plants. X irradiation and photoperiodism. Use of radioauxin in study of the mechanism of growth hormone action. X irradiation effects on cell elongation.

Dr. E. L. Powers, Jr. - Temperature coefficient of X-ray inactivation of bacteriophage. X-ray effects on mating reactions of P. bursaria. Relative toxicity of H³ and Sr⁸⁹ measured in P. aurelia. Physiologic and genetic effects of nitrogen mustard in P. aurelia.

Dr. J. H. Pomeroy - Use of stable free radicals in radiation dosimetry.

Dr. W. P. Norris - Metabolism of alkaline earths (calcium, strontium, radium, etc.) and phosphorous. Radioactive measurements and hot laboratory techniques.

Radiological Physics

Mr. J. E. Rose and Dr. L. D. Marinelli - Detection of gases at very low dilutions. Distribution of ionization in air around point sources of B rays.

Health Services (Research)

Dr. J. Schubert, Dr. A. Lindenbaum and Dr. Marcia White - Treatment of radioelement poisoning. Measurement of complex ions of biological importance.

Billings Hospital

Dr. J. G. Allen (Argonne) - Blood clotting mechanisms. Physiology and therapy of irradiation syndrome.

Dr. C. P. Miller (University of Chicago) - Role of infection of irradiation sickness.

Dr. L. O. Jacobson (Argonne) and Mrs. Edna K. Marks (Argonne) Studies on blood and blood-forming organs. Spleen protection.

Dr. C. S. G. Barron (Argonne) - Biochemical effects of radiation.

Toxicity Laboratory (University of Chicago)

Dr. r. C. McLean and Dr. J.M. Coon - Radiological warfare program. Radiobiological research.

SATURDAY, May 13, 1950

Minutes of
Meeting of
March 10
and 11, 1950

The Chairman convened the meeting at 9:00 a.m. and presented to the Committee the minutes of the meeting held at the Atomic Energy Commission on March 10 and 11, 1950. The minutes were approved unanimously.

Report on
Support of
Research
Projects

Report on Support of Research Projects. The Committee discussed the subjects and budgets of the research projects which had been approved, reviewed or declined by the Division of Biology and Medicine during March and April 1950. The list of such projects is available in the files of the Division of Biology and Medicine.

New England
Deaconess
Hospital
Contract

New England Deaconess Hospital Contract. Dr. Shields Warren and Dr. A. Baird Hastings left the room while the New England Deaconess Hospital contract which was considered at the meeting held on March 11, 1950 was presented by Dr. Dunham. The Committee approved unanimously the contract as written and expressed the hope that the work should be started at an early date.

Yale
University
Proposal

Yale University Proposal. Dr. Warren presented a proposal received from Dr. C. N. H. Long of Yale University requesting support of the AEC to establish an institute of radiobiology costing three to four million dollars which would serve to provide a number of facilities for work in biology, medicine and agriculture. The proposal involves a cooperative program for training foreign workers in the use of isotopes.

The Committee expressed strong feelings against supporting such a project, and they were of the opinion that the AEC has supplied sufficient funds for training centers.

Chicago
Operations
Office

Chicago Operations Office. Dr. S. M. Skinner, Director of the Research Program outlined the program of the various contracts handled by the Chicago Operations Office. The Committee was interested in the statement that the Chicago Operations Office administered between 100 and 110 research contracts which had been approved by the Research Division

and the Division of Biology and Medicine.

The question of overhead was discussed. It was brought out by the Committee "that even in groups of undertakings or types of undertakings we are still not at a place where uniform overhead should be taken as standard." Dr. Skinner concurred with this statement.

An extensive review was given of the Argonne National Laboratory contract.

University
of Chicago

University of Chicago. Mr. W. B. Harrell spoke briefly on the cooperation that exists between the University of Chicago and the Argonne National Laboratory with particular references made regarding the Argonne Cancer Hospital.

Dr. L. T. Coggeshall also commented on the cordial relationship between the University and the Laboratories. Dr. Coggeshall told of the need for the hospital and explained the structural details and the plan of its operation for which bids have now been requested. Dr. Coggeshall read into the record the following outline of the operational plan:

"The purpose of the hospital, as set forth in the contract, is to provide facilities for clinical investigation and experimental work in the field of cancer with radioactive materials, and other sources of radiant energy, including such biological research ancillary thereto as may be indicated; the advance training of personnel in such

fields, and assistance to and collaboration with the Commission, the Argonne National Laboratory, and its participating institutions, and other cooperating organizations in the work of the hospital. The regular services of the hospital will be provided by the University, and the clinical services, which facilities are not provided in this building. Such services include the admission and discharge of patients, routine X-rays, clinical, pathological diagnostic examination, food, laundry, regular housekeeping service, drugs, non-radioactive therapy, reference library, and so forth.

"It is understood that the use, policies, and practices concerning the admission of patients to other units of the University Clinics are to govern the admission of patients to this hospital. Patients will not be admitted to the hospital for routine medical care. It is understood that a more detailed listing of items of reimbursement for service, will, of course, be set forth by the units doing the operating contact. The responsibility for furnishing routine medical and surgical services shall rest with the University.

"The research program of the hospital will be carried on by the members of the medical faculty of the University, representatives of the Argonne National Laboratory, and its participating institutions, and other cooperating

organizations and institutions. It is understood that members of the clinical staff of the School of Medicine, and members of the staff of the Argonne National Laboratory will constitute the principal components of the permanent staff of the hospital, but other qualified members, such as the participating members of Argonne, may constitute a part of such permanent staff.

"The appointments to such professional research staff will be made by the Director, with the advice of the medical advisory committee.

"Applications for proposed projects by members of participating institutions of Argonne, and other cooperating institutions, will be encouraged by the University, and submitted to the Dean of the Division of Biological Sciences, who with the advice of the medical advisory committee, shall approve applications and establish priority of projects. All such applications and the participation of all such cooperating members in the program shall be subject to rules and regulations consistent herewith, established by the University with the advice of the medical advisory committee, and concurred in by the Commission. Now, the administrative set-up will be:

(a) The administrative aspects of the medical-biological program of the hospital will be under the direct control of the Dean of the Division of the University of Chicago.

(b) The administrator, under title of the Director of the Argonne Cancer Research Hospital, will have two assistants, one of whom will be chosen from the clinical faculty of the School of Medicine of the University, and the other designated by Argonne National Laboratory from its medical and biological staff. The Director will also be assisted by the Superintendent of the University Clinics.

(c) There shall be a health physicist, who will be assigned two physically and technically qualified health physicists. He will be responsible for the enforcement of such rules and regulations in an effort to properly protect all personnel from health hazards; to properly shield radioactive materials being used or stored on the premises; to safeguard the building and equipment from contamination by radioactive materials; to properly protect patients and their visitors from undue exposures to radioactive materials; and to exercise proper precautions in the disposal of all radioactive refuse, sewage, and other discarded material.

"The medical advisory committee has been appointed. It consists of Dr. Andrew Ivy, University of Illinois, as Chairman; Dr. Smith Freeman, Northwestern University, member; Dr. Cecil Watson, University of Minnesota, member; Dr. Coggeshall, ex officio member; and Dr. Warren, ex officio member.

"The committee will consist of five members, with three

members selected from the participating institutions of the Argonne National Laboratory and other cooperating institutions; the other two members to consist of the Dean of the Division, and a member of the U. S. Atomic Energy Commission or his authorized representative. Members of the committee, including those required to fill vacancies, shall be appointed by the University with the advice of the Board of Governors of the Argonne National Laboratory and the clinical faculty of the School of Medicine of the University, and with the concurrence of the Commission. The terms of office shall be six years, except that with respect to the members constituting the committee at the time of its adoption of the plan, the term of office of the chairman shall be six years, and the term of office of Dr. Smith shall be four years, Dr. Watson, two years; and all members whose terms of office shall have expired shall be eligible for reappointment.

"A close integration is planned of scientific matters and problems with the work in the Goldblatt Hospital and the work in the Argonne Cancer Hospital."

Dr. Brues spoke on the need for the cancer isotope hospital which he believes is necessary not only from the technical point of view but from the standpoint of developing a mode of thinking on radiation therapy of cancer which has not been quite accomplished elsewhere.

Toxicity
Laboratory

Toxicity Laboratory. Dr. Franklin McLean reviewed the history of the Toxicity Laboratory, the Noyes Panel and RW program. He gave a brief summary of research progress and present goals. A non-classified bibliography is being prepared of literature on RW and related subjects.

Argonne
National
Laboratory

Argonne National Laboratory. Dr. Hilberry welcomed the Committee in Dr. Zinn's absence. The Committee was interested in his oral report on the growth and development of the Laboratory since its inception in 1942 to the present.

Dr. Brues spoke briefly on the general orientation of the biology program with emphasis on the main line investigations and exhibits, i.e. the investigation of neutrons, the particle problem and other radiobiological programs. He closed his remarks by reading the following paragraph from a book entitled: "The Liberal Imagination" by Dr. Lionel Trilling which Dr. Brues believed applicable to the complex research programs at the Laboratories:

"We must understand that organization means delegation and agencies and bureaus and technicians, and that the ideas that can survive delegation and that can be passed on to agencies and bureaus and technicians are inclined to be ideas of a certain kind and a certain simplicity. They give up something of their largeness and modulation and complexity in order to survive, the lively sense of contingency and possibility, and of those exceptions to the

rule which may be the beginning of the end of the rule. Thus science does not suit well with the impulse to organization."

Biology Building

Biology Building. Dr. Warren and Dr. Powers reviewed the status of the biology building. They stated that plans have been completed and that bids are to be requested for the building the first week in June.

Medical Program

Medical Program. In the absence of Dr. Hermann Lisco, Dr. R. J. Hasterlik discussed the activities of the Medical Service Division which consists of the Health Service Group, the Radio-biochemistry Group and the Occupational Hygiene Group.

Radiological Physics Division

Radiological Physics Division. Mr. J. E. Rose presented an outline of the important work that is now being carried on under the Radiological Physics Division. This statement included the work of the research section under the direction of Dr. Leonidas D. Marinelli.

Research Projects by Graph

Research Projects by Graph. Dr. Warren described the work of the Division and individual budgets of the programs by a graphic presentation of the research and development programs. The Committee expressed many commendations as to the merit of these charts.

The Committee adjourned for lunch at 12:30 p.m. and reconvened at 1:30 p.m.

Industrial
Physicians

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Industrial Physicians. Dr. Dunham presented a proposal from Dr. James H. Sterner, Consultant to the Division of Biology and Medicine concerning the establishment of a training program for industrial physicians. It was the sense of the Committee that the need is critical and that such a program should be started at the earliest date. The proposal was approved unanimously with the understanding that an emolument of \$3600 should be paid for the first year of training and \$5000 for the second year of training. It was moved and seconded that the University of Rochester would administer the program, if feasible. Otherwise it is to be the responsibility of the Director of the Division to follow other possibilities for its administration.

Biological
Experiments
Eniwetok

Biological Experiments Eniwetok. Dr. George V. LeRoy, Director, Task Unit of the Biomedical Program, gave an interesting review of the progress to date on plans for the biological experiments as a part of the next weapons test. Dr. LeRoy stated that the prospects for a successful test are excellent and that he has received every cooperation from the Army, Navy, Air Force and the Veterans Administration.

Argonne
National
Laboratory,
Rochester
and ORNL
Budget
Reviews

Budget reviews. Mr. Perry advised the Committee of the recent discussions pertaining to the 1951 budget reviews for biology and medicine at the Argonne National Laboratory. He stated that the review had brought a reduction in the

cost ceiling in the budget that had been submitted to the Congress. Dr. Dunham and Dr. Claus reviewed the 1951 budgets for Rochester and the Oak Ridge National Laboratory. In connection with these discussions the Committee expressed themselves as being strongly in favor of having research programs set up on a two-year basis and at the end of the first year review them for another year.

Arco Program

Arco Program. Dr. Claus outlined the medical, health physics and background survey programs at Arco. The health physics branch is to be under the supervision of the medical service and as now organized will be operated as a centralized function of the AEC rather than by individual contractors.

Atomic Bomb
Casualty
Commission

Atomic Bomb Casualty Commission. Dr. Warren summarized the status of the ABCC program and the staff paper which was to be presented to the Commission for their consideration. The program calls for an annual operating cost of approximately \$2,500,000 beginning FY 1951. After a full discussion the Committee agreed to approve the program as it was presented. It was suggested that a semiannual reevaluation of the program would be of important scientific and medical value. It was further suggested that someone from the Commission should make a survey of the project annually.

Radiological
Monitoring
Training
Courses

Radiological Monitoring Training Courses. Mr. Berry reported on the civil defense instructor training courses and the AEC emergency monitoring team programs. The

Committee was pleased to learn that the individual states are planning to take over and continue the training courses under the supervision of the National Security Resources Board.

National
Science
Foundation

National Science Foundation. Mr. Beverly Thompson, legal adviser to the Division, gave the Committee a splendid orientation on the recent legislation concerning the National Science Foundation Bill.

Visit to the
National
Bureau of
Standards

Visit to the National Bureau of Standards. The Chairman thanked Mr. Derry for paying his respects and the respects of the Committee to Mr. L. U. Condon, the Director of the National Bureau of Standards. This was a courtesy call to thank the Director for permitting the Committee to visit the Bureau on March 10, 1950.

Cancer
Research

Cancer Research. Dr. Bronk brought forth a statement that it had been suggested that AEC funds could be utilized for public information on the subject of specific unpredictable and so-called successful cancer cures. After considerable discussion, the Committee stated they did not believe that this problem should be part of the Commission's biological and medical program.

Fellowship
Program

Fellowship Program. Dr. Warren and Dr. Pearson reported on the Fellowship Program. The Committee regretted to hear that the postdoctoral fellowship program has been practically closed out by the National Research Council.

Dr. Pearson stated that there were 405 applications for predoctoral fellowships evaluated by the fellowship boards of the National Research Council. One hundred forty-nine were recommended to four regions for appointment. Of this number there were 29 in the biological sciences and 120 in the physical sciences. The NRC board for postdoctoral fellowships in biology and agriculture have now approved eleven applications, four are in the physical sciences, three in the biological sciences and four in the medical sciences.

Appointments of both predoctoral and postdoctoral fellows are contingent on fellowship clearance from the security aspects. The Committee reiterated their previous view that the Director of the Division of Biology and Medicine should continue the struggle to keep the fellowship program going and to have the postdoctorate program re-evaluated.

Brookhaven
National
Laboratory

Brookhaven National Laboratory. Dr. Warren reviewed the staff paper entitled "Guide to Operation for ENL" for the information of the Committee. The overall policy was discussed and further reports will be made to the Committee by the Director of the Division of Biology and Medicine. Dr. Hastings pointed out that he believed the Committee could be tremendously helpful in the gradual development of the Brookhaven enterprise, the cooperative enterprise

of the northeastern universities, by keeping in as close touch with the laboratory as they can and making suggestions as they may occur to the members.

ACBM Membership ACBM Membership. Dr. Hastings and Dr. Beadle expressed their sincere regrets upon leaving the membership of the Committee as of June 30, 1950. The Chairman stated he was very sorry to see them retire and thanked them both for their fine services.

Next Meeting Next Meeting. The next meeting is to be held at the Atomic Energy Commission in Washington, D.C. on September 8 and 9, 1950.